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THE COMMUNICATIONS COMMISSION; EARNINGS AND EXTENSIONS

The creation of a new federal commission to take over the regulation of telephone, telegraph and radio companies, as proposed under Senator Couzens' bill, is receiving the serious attention of leaders in these industries, preparatory to action at Washington within a few months. These leaders are asking, "Do we want our business regulated by a Federal Communications Commission?"

And if Congress decrees that it must be so regulated, the next question will be, "Under what terms and conditions?"

Like most other industries the telephone business wants as little government interference at Washington as possible. In some respects the Interstate Commerce Commission has had considerable to do with telephone companies, but the commission's wise policy has not made it very irksome for them.

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One of the reasons for this is that the commission has had plenty of other work to look after besides regulating telephone companies which were doing a good job for the public. Another reason is that the United States Independent Telephone Association and the Bell organization have kept a careful watch on Washington developments and saved both the telephone companies and the I. C. C. much unnecessary trouble.

All of which indicates that the advice and suggestions of telephone organizations have carried much weight and respect at Washington.

"Regulation and control of the transmission of intelligence by telegraph, telephone, cable and radio" is the way the Couzens bill defines its purpose in creating the proposed new commission. An argument for its passage is that the I. C. C. is so overloaded with its regular work that it cannot handle communications.

There is ground for this statement, for it is reported that each of the eleven commissioners on an average voted on 2,829 matters involving the exercise of discretion last year—which is nine a day for six working days a week. This is exclusive of a multitude of other matters not entered in the records. The opinions entered in cases decided aggregated nearly 12,000 pages, about 16 volumes of 750 pages each.

With the increased work growing out of motor and air transportation the I. C. C. sees its duties multiplied, leaving little time for the supervision of the communications division embracing the telephone, telegraph, radio and cable. The telephone belongs in a classification including the communications, rather than being bunched with railroads and electric light and power companies as now under I. C. C. regulation.

State Rights Involved.

State utility commissions are fighting the proposal to place telephone companies under a federal communications board. The National Association of Railroad & Public Utility Commissioners adopted resolutions opposing the plan, and various state commissions are supporting this action by urging their members of Congress to vote against the Couzens bill.

The Michigan Public Utilities Commission has followed this course, and by so doing has aroused much comment as it has thus practically declared war on the pet measure of the United States Senator from its own state. The principal reason why the state commissions are opposed to the Couzens bill is because it will curtail their powers and give to the federal government the authority now exercised by the state over companies furnishing telephone service.

In other words, it is the same old problem of the encroachment of the federal government upon "state rights."

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It is apparent that some way must be devised to adjust harmoniously such a situation if a communications commission is to function satisfactorily. State control will suffice for thousands of telephone companies whose lines do not go beyond the lines of their home states. Of course, their long distance connections, which potentially extend all over the country, will be cited by the advocates of federal supervision as an argument in favor of national jurisdiction, but that doesn't alter the fact that by far the most of their activities are local to their state and require only state regulation.

They will prefer to deal with their home commission rather than to get tan-

gled up in the Washington red tape that usually follows when an individual or a corporation becomes answerable to federal authority.

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In an editorial pointing out the difficulty of properly dividing state and federal regulatory authority over service companies, the Muskegon (Mich.) Chronicle has this to say:

"As the relative size of the country diminishes, and transportation and communication become speedier, so that messages cross several states in the twinkling of an eye, it becomes manifest that communication utilities are no longer state units, nor are their activities conducted within state boundaries.

Regulation of nation-wide activities by segregated state units which cannot reach the whole field of transactions of the utilities concerned is bound to be bungling, overlapping and generally unsatisfactory. Even the power industry, which has strenuously opposed national regulation, is beginning to see the subject in a different light.

On the other hand, there are certain local functions of all these utilities, as with the railroads and bus lines, that come properly under state control. There must be a national dividing line where state and federal functions could reasonably be segregated.

At present there is no bridge over which the two forms of government may pass in meeting each other and determining upon a division of their work. It is a gap in our government scheme that is a constant source of friction. There ought to be a way to get across."

COMING CONVENTIONS.

The Telephone Association of Maine, Falmouth Hotel, Portland, September 5 and 6.

United States Independent Telephone Association, Stevens Hotel, Chicago, October 22, 23, 24 and 25.

Independent Pioneer Telephone Association of United States, Stevens Hotel, Chicago, October 24.

Illinois Telephone Association, Springfield, Hotel Abraham Lincoln, November 20 and 21.

In the process of solving Chicago's tremendous street railway problem, the experts have developed interesting ideas and theories that apply to the public utility situation as a whole. One of these involves the relationship between the earning power of a service company and its ability to make extensions. Their investigation shows that the utilities with good earnings have made extensions and kept up with public demand, while those with small incomes have made few or no improvements.

Earnings and Extensions.

The findings of the experts make comparisons of the various utility services, and it is gratifying to note that the telephone industry stands out in a most favorable light. For instance, the electric railways earned only 4.1 per cent on their invested capital last year and, instead of extending their lines, during the last five years their total mileage has actually decreased. The steam railroads earned 4.9 per cent and their increase in trackage was only 4 per cent, and nearly all of that was in terminal areas.

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During the same five-year period, from 1922 to 1927, the experts report, the number of telephones in the country increased from 14,347,395 to 18,522,931, a gain of over 29 per cent. The traction analysts account for this by pointing out that the telephone companies reporting to the Interstate Commerce Commission earned 7 per cent on their invested capital in 1927.

Gas companies did better than the electric railways, but not as good as the telephone companies. The same is true of the electric light and power plants. After weighing all the facts the experts arrive at the conclusion that in order to make extensions a utility must have good earnings. And, again, it must have good earnings in order to attract new capital.

The electric railways increased their investment only one-half of 1 per cent during the five-year period. During the same period the telephone companies, which increased the number of stations 29 per cent, were able to attract 60 per cent more capital for investment in their business.

Both the gas and electric light and power fields showed even larger increases.

The Chicago inquiry proves conclusively that adequate earnings are necessary to attract new capital and make possible the extensions needed in growing communities.

Central Office Management Fundamentals

Analysis of Practical Steps in Successful Central Office Management Which Offer Suggestions for Possible Improvements—Fundamental Items in Each of Four Main Divisions—Third Award, Traffic Division, TELEPHONY'S Contest

By Abbot D. Spaulding,
Division Traffic Supervisor, State Area, Illinois Bell Telephone Co.

One of the most interesting problems of the telephone business is that of central office management. The problem of management is interesting in all lines of endeavor, for it calls into play many factors; principally, coordination and direction. There are a great many different methods used in attaining successful central office management. These methods are generally fundamentally alike although differing somewhat in their scope.

An effort has been made in the following paper to outline some of the definite steps of successful central office management. These steps are practicable and are mainly valuable as suggestions for possible improvement. It is possible frequently to overlook some known measure of helpfulness through being too close to the job.

This paper, in an effort to be specific, divides the central office management problem into four main divisions: Basic office items, force items, service items and general items.

There are certain fundamental items in each division that must be right in an office before much consideration can be given to other things. These may be considered in order of the divisions given.

The equipment must first of all be adequate, and then kept in good working order as a first consideration.

A complete check of all equipment provided should be made to determine if adequate. Analyze special conditions of seeming inadequacy, and take the necessary steps to provide relief. Constantly keep in touch with the provision of future equipment, what provision is planned for growth, etc.

Special features of central office equipment require special consideration, having, as they do, a more serious effect on service conditions.

The provision of toll circuits and circuit layout on a toll board is vital to successful toll office management. Here, more than in local, it is essential that the management be familiar with this equipment under working service conditions. Service condition transmission of working equipment cannot be overstressed.

A program of listening-in tests, made by the management at regular intervals, is essential in the giving of good service. This, not alone from the viewpoint of the purely service features involved, for in addition, it gives the necessary picture of equipment under actual service conditions.

A check should be made of the reporting of trouble to the repair clerk; determine if reported properly; if bent plugs and out-of-order cords are capped and kept out of service. It is also necessary to determine if the chief operator is advised of trouble reported, and if such trouble is being repaired promptly and properly.

Board spread and the congestion of answering jack panels must be watched; are the supervisors reporting panel congestion, and is a record kept so a cut can be originated to eliminate the condition? Check the distribution of lines by classes of service to ascertain if the board spread is adequate for each class of service.

A toll office must watch the distribution of traffic and tickets in relation to the provision and layout of circuits, recording trunks and *TX* signals. The inward line of the board is the only entrance that distant points have to your office and its equipment provision is a problem in itself. Check the call circuit or straightforward trunk layouts to all offices in an effort to reach as near an ideal condition as possible.

The call circuit layout in any local office is the pendulum that facilitates the proper movement of traffic. The equipment provision here is one of continuous study and application. Straightforward trunking has emphasized the burden, rather than lessened it, from a purely equipment viewpoint.

Equipment provision in a central office is summed up in the movement of the traffic.

Schedules.

The schedules are the working charts of the office. They must be adequate and reviewed regularly, as everyone should have a complete understanding of the importance of these schedules. New schedules should be provided as often as necessary to meet the traffic. Special schedules for Sundays, holidays, for unusual traffic conditions, etc., are essential.

Review the operators' seating plan frequently, particular stress being placed on the assignment of operators to the schedule so the experience factor in the evening hours is not too low.

The use of some form for checking half-hourly operator requirements against the number actually on duty is necessary. Failure to meet the requirements needed may mean poor service; if over the requirements, be sure the best use is made of the people provided. This surplus should be utilized in coaching, in training for junior supervisors, in other training, and in getting special work done in the office that is needed.

Absentee Time and Vacations.

A form for listing absent operators and the hours they work is necessary in order to know what hours your schedule will be short for the day and, if necessary, to provide replacement for absentees. Absentee time occurring in the evening hours must of necessity generally be replaced.

Review absentee time and correct individual cases of excess. Review the vacation schedule to be sure it is being followed and that vacations are not being allowed to accumulate, making it necessary to give these at a later date when it will be inconvenient from a traffic standpoint.

"There Are Certain Fundamental Items in Each Division of Central Office Management," Says Mr. Spaulding, "Which Must Be Right in an Office Before Much Consideration Can Be Given to Other Things." He Then Discusses in Detail These Factors, and His Comments Offer Suggestions for Possible Improvement.

Endeavor to give vacations according to the plans individual girls have made.

Determine when furloughs and fixed absentees can be expected back so plans can be made to fit them into the schedule.

Care should be exercised in the granting of furloughs to be sure no one is allowed this privilege in preference to anyone else equally entitled.

Force Items.

Know the flexibility of the force. The flexibility of a force is the real measure of its efficiency. Provision must be made for a sufficient number of trained "B" operators, inward operators, information and intercepting operators, trouble operators, supervisors and junior supervisors. Plan ahead to have these people in training constantly so the flexibility of the force is never impaired.

Know the fitness of the people in their various jobs. Some operators are more successful in a certain type of work. Measure the fitness of each individual employe in any supervisory position. People that are not fitting their present job should be shifted to other work to determine for what work they are best fitted.

Be exceedingly careful in the handling of employes. Be fair and impartial in the selection and judgment of them and their work. Give everyone who can qualify the

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The importance of management in the telephone industry has been stressed many times. There are many kinds of management involved, and each is important in its own branch. In management in the central office as it relates to the traffic end, are found many interesting problems which have been solved through the years as a result of definite steps.

In his paper on "Successful Central Office Management," Mr. Spaulding discusses certain fundamental items in each of four main divisions—basic office items, force items, service items and general items—of central office management. What he has to say concerning these various factors in management is based upon a wide variety of experience in traffic work.

Soon after graduating from the University of Washington, Mr. Spaulding entered the traffic department of the Mountain States Telephone & Telegraph Co. in Denver, Colo., in 1923. For two years from April, 1925, he was district traffic chief of the Mountain States company at El Paso, Texas, and was then transferred to Salt Lake City, Utah, in the same capacity.

During his work with the Mountain States company, Mr. Spaulding was in charge of telephone switchboard demonstrations that exhibited before approximately 30,000 people in 2½ years in the Mountain States company territory.

In September, 1927, he became an assistant engineer of the Illinois Bell Telephone Co., Chicago, and in June the following year was made district traffic superintendent at Peoria, Ill. In November, 1928, he became division traffic supervisor in the state area of the Illinois Bell Telephone Co., Chicago.

Everyone engaged in traffic work will find something of interest in this article that will repay careful study.

opportunity to advance. Analyze carefully the treatment of individual cases that have come up for attention—be critical of the facts and lenient in their interpretation.

Many traffic men will, in seeking selections for advanced supervisory positions, feel there is a dearth of really good material. This is seldom true; the fault lies in the training and development rather than in the absence of material.

Some questions the management should be constantly concerned with are: Is there an abundance of pep and enthusiasm in the office among a big majority of the force? Are they happy in their work and willing to do things as suggested?

Few people ever need to be made to do anything; they can be won over to do it so it seems a part of their own purpose. These items sum up the morale of the organization, for no organization can be successful without good group morale; the sum of which is: Are they for the company and its policies?

Be exceedingly careful of every individual case of correction or assistance that is handled. Remember every individual can be satisfied and is qualified for something; the point is, to find it, tell them and gain their respect and confidence. Every such individual has a viewpoint of his own. Find it and endeavor to understand, for therein lies the answer to the necessary corrective measure.

Happy, contented workers do the best job; if no attempt is made to correct individual cases of discontent, they will have an influence on the whole force.

Remember to encourage good work; it is more necessary to compliment good work than to condemn. Frequently, it is possible to correct some features of poor work by pointing out the good that has been accomplished.

Service Items.

The triangle of a good service job is speed, accuracy, and courtesy. As it is true that no triangle is complete without three sides, so it is true that the three basic items of good service are closely related.

The element of speed comes first, for it plays an important part in costs and satisfactory service. Modern life travels at such a high rate of speed that fast telephone service is essential.

Speed in central office operations is a component of two things—equipment and the operator. The human part of this task is all that will be discussed here, as the equipment phase is covered elsewhere in this paper.

All operators should be drilled in load carrying, as this is the prime element in traffic costs. A load-carrying capacity is developed with the individual operator through practice at the board under proper supervision.

The operator is taught to make certain operations quickly; such as, reaching for line signals, reaching toward the hundreds bank in the subscribers' multiple, passing of cords to adjacent operators, reaching toward out trunk groups, accepting cords passed, and plugging into the answering jack, etc.

The operator is also taught to advance calls promptly, to ring promptly, to disconnect both cords promptly, and to overlap on certain operations; such as, answers another line signal while disconnecting, while ringing on a completed connection, or while taking up an assigned trunk in the out trunk multiple.

The "B" board operators should likewise be trained in the speedy handling of connections. Their job is generally less than half of the "A" operators, having to complete only one end of the connection, so their load is usually to establish at least twice as many connections. The "B" operators should be taught speed in making trunk assignments, in reaching for the hundreds' bank of the subscribers' multiple and in disconnecting.

Toll service has of recent years so improved in speed that the load-carrying capacity of toll operators requires attention. Taking up assigned trunks, ringing on established connections, taking up the toll line in the toll line multiple, ringing on the toll line, answering supervisory signals and disconnecting are some of the operations that a toll operator should make promptly.

Overlapping operations play an important part in a toll operator's speed. The writing of details and reports on toll tickets play an important part here.

Tests should be taken in the central office to determine the average speed-of-answer to line signals, to recall signals, to recording signals on toll boards, to information line signals, to intercepting line signals, and to supervisors' signals. Time intervals should be kept to show the average elapsed time to first ring on local multiple connections, to first ring on toll lines, to first ring on trunk connections, to release of toll lines and to taking down cords on disconnect signals.

The sum of all of these features is to insure a speedy answer to a subscriber's signal and the prompt connection to the desired number.

To build speed in a central office, it is necessary to improve the speed of the individual operators. This frequently does not mean working with every operator in the force, for some operators are more speedy than others. The point is to select the less speedy operators, and set to work here, effecting the necessary improvement. Special supervisory effort will be necessary with these operators in order to improve their speed.

The supervisor selected for this work should be one who knows the fundamental operations that underlie an operator's speed and their relative position to one another. Good position management by the operator is obtained only through practice and direction; each operation made at the board is correlated with every other operation.

The supervisor, while coaching the individual operator, should be plugged-in with her and note every detail of the operator's methods that have any bearing on her speed. Quick and deliberate operations, overlapping operations and teamwork should all be studied in detail in order to detect the flaws that are affecting the speed.

Specific features should be noted for early correction. These should be pointed out to the operator and by explanation and demonstration the correct practice introduced. Following the future work of the operator for a period is essential in order to be assured that the correct practice has been so well grounded that it has become a habit.

Individual corrective work, carried on with individual operators on specific items of the work, will do more toward the improvement of the load carrying capacity of an office than any other measure.

Accuracy.

Another side of the triangle of service —that of accuracy—presents as many problems to the management of the central office as any other feature. What the subscriber wants when he uses the telephone is a speedy answer and connection to the right called number. Establishing the connection to the right called number and maintaining it free of interruption are in the province of accuracy.

The first phase of this problem can, therefore, be generally classified under the heading of avoiding wrong numbers. Wrong numbers are generally caused by two things—misunderstandings and carelessness. Both of these are central office problems.

The operator can avoid most misunderstandings through being alert and attentive in obtaining the called number, and by concentration on such number when understood. It is better to ask the subscriber to repeat the called number than to take a chance of establishing a connection to a misunderstood number.

Operators are taught when repeating

"Get By" but Never "Get Far."

Many of these half-way folks "get by," but they never "get far." There is always a premium in business on the man who does his work painstakingly, with completeness and finality; he is the man who will be trusted with more and more responsibility, up to the limit of his capacity.

The man who informs himself adequately about his firm, its methods, its policies and its products—who does his work so well that no one need follow him up to patch the ragged edges—is on the safest, surest and shortest road to achievement.—J. Ogden Armour.

numbers to other operators, or subscribers, to use the stile-strip method of repetition. This merely means the separation of the number on the hundreds basis or by bank and jack number; such as, Main 12-34, meaning the 1200 bank and jack number 34.

Concentration as applied by the operator to telephone numbers means separating it mentally on a stile-strip basis, for this method insures longer retention and is correlated with the physical act of reaching quickly toward the 1200 multiple bank and then selecting the 34 jack more deliberately. These two operations, plus rigid concentration, assure accuracy.

Other causes of wrong numbers are: failure to watch multiple jack markings; on high multiple reaches, failure to rise from the round of the chair and check the jack selected; obstructing the view of the multiple jack in testing the line; failure to pass numbers by the stile strip method when passing orders to other operators; failure to take up the right trunk on assignment; accepting doubtful trunk assignments from "B" operators; failure to select the right ringing key on party lines; failure to select the same ringing key on supplementary ringing on party lines; and failure to depress the call circuit key long enough to permit the "B" operator hearing the entire number.

The second phase of accuracy—that of maintaining the connection free of interruptions—deals with the problems of cut-offs and double connections.

Cut-offs are generally caused by carelessness due to: failure to pair cords in disconnecting; failure to trace cords manually in disconnecting whenever there is any cord congestion; disturbing plugs in adjacent jacks when disconnecting; failure to challenge on one-light disconnect signals; when disconnecting in the answering jack multiple for adjacent operators, failure to meet on the proper cord and pass the signal for disconnecting; and signaling for adjacent operators to disconnect long reaches in the local multiple.

The more frequent causes of double connections are: failure to test the local multiple jack carefully and at the proper slant; failure to have the listening key open when testing the jack; having two keys open at the same instant while supervising or overlapping work; operating keys accidentally with arms or hands while fingering them unconsciously; taking busy trunk by misplugging; taking busy trunk by misunderstanding assignment or accepting a doubtful assignment; and failure to watch for a dim supervisory signal after plug is in trunk.

Another phase of the accuracy problem is that of giving subscribers incorrect reports regarding the called number. The more frequent causes of this type of error are: Giving the report on the wrong cord or with key operated on another connection; errors in multiple markings and information records; mistaking special operator recalls for busy-back flashes; and calls for O. K. lines being referred to the intercepting operator in error.

Toll operating errors that affect the accuracy of long distance service are generally incorrect ticket details; misunderstanding subscriber's order; illegible writing on toll tickets; quoting incorrect rates and charges to subscriber; failure to associate the cord and disconnect signal; failure to trace cords manually in disconnecting when there is cord congestion; failure to pass numbers to distant office operators clearly and distinctly; failure to pass numbers by the stile-strip method; accepting doubtful trunk assignments; misplugging in the local multiple when taking up the subscriber's line; accepting doubtful order from distant office operator; and failure to verify uncertain ticket details with the calling subscriber.

The work of maintaining accuracy in a central office necessitates constant attention to this phase of the work by all supervisory employes. Tests must be made frequently to determine the per cent error of the office, and these tests should likewise show the types of errors being made.

Correcting the accuracy in a central office is a problem of working with the individual operators who cause the greatest number of errors. These operators require special coaching and drill work.

Specific features in an operator's work that contribute to the cause for errors should be uncovered and corrected. Many features, which by themselves are merely irregularities in an operator's work, lead later to actual errors in establishing connections.

Courtesy in the central office to subscribers is an essential part of good telephone service. The numerous contacts the employes of the operating forces have with the subscribers leave a wide field for the application of courtesy.

Courtesy in the central office is achieved through the operators' and supervisors' tone of voice in their dealings with the subscribers. A pleasant, courteous tone of voice will go a long way in making the subscriber feel that he is receiving good telephone service.

Standard phrases and acknowledgments by the operator, such as "Thank you," when spoken properly, add a personal touch to the call. The business of establishing thousands of telephone connections daily can become quite mechanical unless an effort is made to inject real, personal interest and courtesy into the voice work of all operating employes.

New operators are constantly needed not only to replace the losses that occur in any operating force, but frequently to care for additional traffic. The selection of the right type of girl for operating work is an ever-present central office problem. Applicants for positions should be required to fill out an application blank, for this serves to give a picture of their handwriting. Educational requirements for operating work call for at least two years of high school.

The applicant should be fully advised of the requirements of the business; that is, her hours of work, wages paid, chances for advancement, and other general working conditions.

The applicant should be required to pass a simple form of mental test, a physical examination that deals particularly with eyesight, hearing and speech. Anyone with an impediment in speech cannot qualify for operating work.

The training of new operators will generally be carried on in the central office under the supervision of the chief operator. Where classrooms are not provided, this training takes place on the regular switchboard.

Student operators should be trained from a text book that covers all of the steps of operating and standard phrases involved. The various text book lessons are tied-in with actual work at the switchboard in order to fix the lesson in the student's mind as a practice.

When the student operator completes the training period, she should be turned over to a supervisor in the central office who should be charged with her further development. In offices where no supervisor is provided, this becomes the duty of the chief operator.

In offices large enough to require it, supervisors should be constantly in training. These are called junior supervisors, and upon their completing the prescribed training they are eligible for appointment to the next regular supervisory vacancy.

Junior supervisors should be selected from the best operators in the force and the general qualifications are: leadership, personality, intelligence, adaptabiltiy, health, and length of service. When all other considerations are equal, length of service should be the determining factor.

The junior supervisors should be trained in the following work:

Taking of peg-count accuracy observations.

Coaching of student operators.

Coaching of operators in special service features.

Every Person Has His Place.

I don't want to dangle before you the idea that many of us can become rich and famous. Were I to try to make you feel that each of you can become a towering executive of great wealth and national fame, it would be quite unfair.

It stands to reason that in any large group of men, only a limited number will reach positions of great eminence and affluence.—James D. Mooney, president, General Motors Export Co.

Working with a regular supervisor in division.

Working with chief operator in division.

Drill operators in multiple practice.

Drill operators in enunciation and the passing of numbers by stile strip, etc.

Working with central office instructor.

Working with schedule or chief operator's clerk.

Working on toll ticket rating and routing.

The chief operator is responsible for the training of junior supervisors and, therefore, she should follow the work of each individual very closely and constantly. The training and development of supervisors is the direct responsibility of the chief operator and should, therefore, receive her daily supervision. Studying the various methods used by each supervisor in her work in the development of operators is an important part of this work. Daily talks with each supervisor about her work is necessary.

Specific service features in each supervisor's division requiring attention should be noted by the chief operator and discussed with the supervisor. It will be necessary to point out to the supervisor various methods to be used in overcoming the bad features noted.

Supervision in a central office in order to be effective must be direct and specific in its general scope. When dealing in particular features it is absolutely necessary to confine the work to the reasons behind the fault rather than to the fault itself.

Supervisors should be taught to use only constructive supervision. The principles underlying constructive supervision are few and well defined. They include:

Knowledge of operating technique.

Knowledge of the reasons for practices.

Ability to detect operating faults.

Ability to detect the cause of operating faults.

Knowledge of the operator's characteristics.

Ability to correct operators properly.

Ability to explain and demonstrate practices.

Ability to follow up corrections and obtain further improvement.

Selection-Training of Chief Operators.

The manager of the operating rooms is usually the chief operator and as such she should be the best obtainable. The qualifications of a chief operator are leadership, intelligence, personality, adaptability, loyalty, judgment and good health.

Leadership here means the ability to direct the efforts of others. Intelligence as used above covers the ability to understand verbal and written instructions and to instruct others. The personality of a chief operator is summed up in her appearance, her disposition and her character. Adaptability as used here covers the ability to be tactful, to be considerate of others and to be enthusiastic.

Loyalty to herself and the company is a major qualification. That a chief operator should show good judgment goes without saying; it also implies being fair and impartial in her handling of subordinates. A chief operator's health plays an important part in being on the job, which is quite essential in such a position.

The chief operator must of necessity be selected from a lesser supervisory position, but preliminary training obtained as an evening chief operator, central office instructor, student instructor, senior supervisor, or supervisor, furnishes an invaluable background.

Every central office should have an understudy to the chief operator in training at all times. Frequently the only source of training is that given by the predecessor. Frequent contacts with the management or traffic superintendent are necessary in order to develop a chief operator. The chief operator should be given the opportunity to attend schools or classes of instruction in traffic problems whenever the occasion arises.

The chief operator should have a thorough knowledge of the entire force. The service trends in an office are the prime responsibility of the chief operator. People and service problems are the major considerations of the job. Successful chief operators cultivate the faculty of keeping in touch with everyone and everything in the central office organization.

A chief operator's responsibilities in the central office include the following:

Knowledge of equipment and equipment layout.

Reporting of equipment trouble.

Force requirements and force provision.

Training of student operators.

Schedules for force and seating plan.

Peg counts and peg count accuracy.

Selection and training of junior supervisors and supervisors.

Selection and training of clerks.

Selection and training of assistants.

Selection and training of central office instructors and student instructors.

Knowledge of individual operator's work.

Knowledge of individual supervisor's work.

Development of individual operators.

Development of individual supervisors.

Knowledge of service items and operating technique.

Knowledge of practices.

Ability to correct operators and supervisors.

Knowledge of personnel problems.

Development of good public relations.

Successful handling of service criticisms.

Equipment provision and force provision are generally based on central office peg counts; and so it is that the correct counting of calls plays an important part in central office management.

Calls of the "A" board, "B" board, information board, intercepting board, inward toll board, outward toll board, must all be counted for peg count purposes. Coefficients depending on each type of board are then applied to the hourly count of calls, and from this is determined the number of "A," "B," etc., units handled hourly on each board.

This information is then used to determine the number of operators needed to handle that volume of traffic. From this is also determined the amount of central office equipment needed to handle such traffic. These records are the basis of all traffic engineering calculations.

Knowing the importance of the peg count, it can be readily understood why the central office management must be sure of the operators' accuracy in the counting of calls. Supervisors must check constantly, on peg-count record days, the accuracy of the operators' count of calls.

Too many operators provided means a waste of money, while too few operators provided will probably impair the quality of the service. Sufficient operators must be provided in order to handle the traffic.

Depending, of course, on the size of the office, individual operators reach 100 per cent efficiency in the handling of a regular average operator's board load in accordance with their experience. This period varies from four to ten months. At 100 per cent experience an operator can generally be expected to carry a board load of 230 units for the busy hours of the day, and approximately 200 units in the less busy hours of the day.

Conclusion.

There are several remaining items that of necessity play some part in central office management. These, however, do not reach the major portions of those discussed heretofore.

Good public relations can be improved by doing an all-around good service job. In addition to this, however, the numerous contacts with the public, afforded the operating people, are of such a nature that full advantage should be taken to make these contacts satisfactory to the subscriber.

Operating employes should be instructed in the handling of a subscriber's criticism. Prompt and courteous attention to these complaints will go a long way toward assuring the subscriber of the quality of the service. Complaints should be investigated and a report made to the subscriber.

Special requests for services that are not being furnished should be fully explained to the subscriber and every effort made to convince him of the reason for the practice.

Interdepartmental relations in the business are another central office problem. It should be borne in mind that no one department in the telephone business is sufficient unto itself, and therefore it depends on some other department for certain cooperative undertakings. Close cooperation between all departments is essential.

Here and There in Telephone Work

The Magneto Exchange Repairman —Induction Coil Trouble.

By JOHN A. BRACKEN.

In the magneto telephone set, the battery, transmitter, and primary winding of the induction coil form a circuit of low resistance called the "local" or "talking" circuit. Through this circuit when closed, the battery causes a current to flow, the value of which depends upon the E. M. F. of the battery and the resistance of the circuit.

Since these quantities are practically constant, the current flowing is normally constant. But when sound waves strike against the transmitter diaphragm the latter vibrates and increases and decreases the resistance of the whole talking circuit. This changes the current in that circuit and by so doing generates an E. M. F. in the secondary winding which bears the same ratio to the primary as the number of turns of wire in the secondary winding bears to the number of turns of wire in the primary winding.

It may be said then that the use of the induction coil in the telephone set is to obtain an electrical balance, just as in mechanics a lever gives a mechanical advantage. In a lever, energy is put in at one end as the product of weight, or force, times distance, and is obtained at the other end in the form of a product which must be equal to the first one, although the factors themselves may be changed; that is, whatever is gained in force through a large distance at one end is equivalent to a large force moving through a small distance at the other.

In the telephone induction coil a similar object is sought. Electrical energy in the form of a direct current is put into the primary winding of the coil with the idea (allowing for a small loss due to heating, etc.) of getting the same product out, with a higher E. M. F. value from the secondary winding at the sacrifice of the quantity of current, which necessarily need not be large.

The induction coil in many types of magneto telephone sets has one end of the primary winding and one end of the secondary winding connected together. These two points are wired to one of the hookswitch contacts, Fig. 1; the other end of the primary is wired to one of the battery binding posts, and the other end of the secondary winding is wired to the L_1 binding post.

Faults in the induction coil can be located by means of what is called a continuity test, or by the bridge method of testing. The simplest apparatus for a continuity test consists of a head receiver and the telephone set battery joined in series with the circuit to be tested. Any make and break of the connection will readily indicate whether the circuit wiring is complete or open.

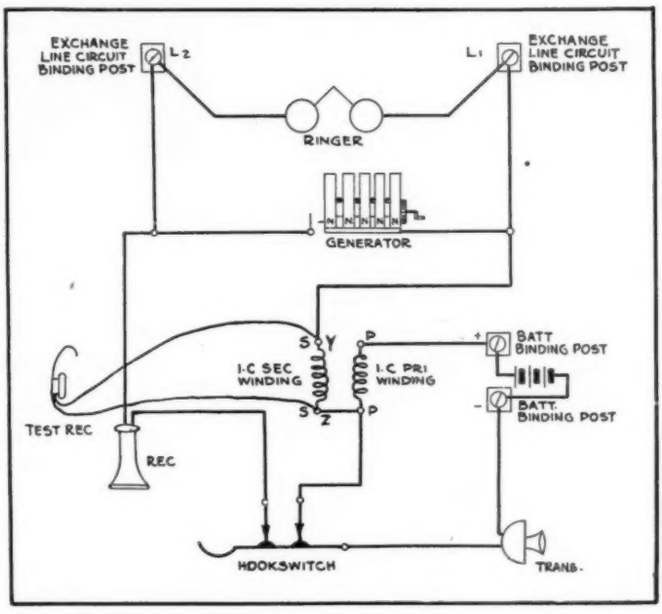


Fig. 1. Magneto Telephone Set Circuit with Connections for Testing the Induction Coil.

The bridge method consists of bridging across—that is, connecting the test receiver direct to the terminals of the apparatus being tested. Short circuits and opens in either primary or secondary winding of the magneto telephone set induction coil can be tested by the bridge method as follows: Call the operator, remove the receiver from the hookswitch and listen. If the operator cannot be heard, connect the clips of the test receiver to points Y and Z (Fig. 1) of the secondary winding of the induction coil; and if the operator can be heard in both the test receiver and the telephone set receiver, the secondary winding is open.

If the operator cannot be heard in the test receiver, the secondary winding is short-circuited. If the primary winding is open, this will be indicated by failure of the transmitter to produce side tone, although at the same time when the operator is called, conversation can be heard in the telephone set receiver.

A further test of an open can be made by short-circuiting intermittently the terminals of the primary winding. This will cause a much heavier spark than if the primary winding is closed.

If either the primary or secondary winding of the induction coil is short-circuited, it may be determined by first joining binding posts L_1 and L_2 together and connecting the clips of a test receiver to points Y and Z, Fig. 1. Then remove the telephone set receiver from the hookswitch and operate the hook up and down briskly, thus making and breaking the connection at the hookswitch contacts. If a click is heard in the test receiver each time the hook is moved up and down, the winding is O. K.; if no click is heard, it is short-circuited.

Other indications of a short-circuited primary winding are that the operator, when called, can be heard but no side tone is heard when speaking into the transmitter and listening in the telephone set receiver; also that the dry cell battery will become exhausted more rapidly than if the primary winding is not short-circuited.

It is well to keep in mind that a telephone circuit is no better than the poorest connection in that circuit whether or not it is soldered, or formed by means of a sleeve, binding screw or post.

In making binding post connections in a magneto telephone set, the principal and most important factor is to make the connections in such manner as to give the greatest possible area of contact between line wires, inside wire, tips of cords, etc., and the binding post screws, thereby insuring a connection which is not very likely to become loose.

A mistake that should be avoided relative to terminating wires at binding posts is not to place the wires on that side of the post which is against the direction of the twist of the binding post screw or nut when the latter is depressed against the wire in making the connection.

The defect in such a connection will be apparent when it is taken into consideration that with a right-hand (clockwise) twist movement of the screw or nut the tendency is to bend the wire in such a manner as the binding screw takes in the operation and draw the wire close. When this rule is followed, the wire will tend to hug the binding post instead of perhaps opening and trying to get away from it as would be the case if a left-hand (counter clockwise) formation were made, in

which the tendency of the screw or nut is to push the wire out instead of in.

In the final test and inspection of the magneto telephone set, see that all wires and other connections are securely fastened, all points of contact soldered where required, and that the full talking efficiency of the instrument is obtained.

See Dismantling of Switchboard They Installed 25 Years Ago.

It isn't often that a man can perform a task or complete a job and 25 years later come back and determine the quality of the work. This, however, was done in Los Angeles, Calif., at the time the Main office on South Hill street, was abandoned by the Southern California Telephone Co. Jim Dunphy and Ed Long and others who installed and maintained the board 25 years previous, journeyed to Los Angeles to commemorate the passing of the switchboard after 25 years of service. Main office was at one time the largest single unit of switchboard in the world.

A gathering of unusual interest was held in Los Angeles to celebrate the retirement of this office. The old-timers who participated in the history of the telephone industry in Los Angeles, prior to 1906 around the Main office, assembled in the abandoned operating room of the Main unit, signed the official register and then proceeded to renew old acquaintances.

At the time the switchboard was installed, rules were made that each man who soldered a strip of jacks should write his name on the strip, for future reference in case trouble should develop. A number of the jacks were removed from the first two sections of the "A" board. Those on which the names of the workmen were still distinguishable were cut off a few inches from the butts and given as souvenirs to the men who had performed the work a quarter of a century previous.

Attractive Recreational Environment Builds Better Morale.

By Frank H. Williams.

"You know," said an old-time telephone company executive recently, "every time I hear of some company having difficulty with its personnel, I feel that the trouble probably is that the recreational environment provided for the employes is such as to depress them, irritate them, or give them inferiority complexes.

"For instance, I had a talk some years ago with a friend of mine who is an executive in another company, and he told me that the girls employed by his concern always seemed blue and depressed. He couldn't understand the reason for it.

Well, of course, one of the very apparent reasons was that the walls of the work rooms were painted in a depressing color. But a still more important reason was that the restrooms and other recreation and rest quarters provided by the company for the girls were old, poorly kept up, and not at all in keeping with the high class type of girls the company was always trying to secure. I suggested a change in all this.

After the change was made there was an immediate and very decided difference noticeable in the girls—they became cheerful; they no longer gave the impression of feeling as though they were the dust of the earth and, accordingly, everything went along much better for this concern.

I believe it is always tremendously important to so arrange things for employes that their pride in their jobs and in themselves will be enhanced. When the quarters and accommodations provided by the company for its employes are such as to make the employes see that they are valued and that the company is always glad to do its bit in making them as comfortable as possible, then it is certain that the morale of the personnel will be all that it should be.

Personally, I think that one of the most important of all points where it is vitally important and profitable for the company to have the best there is, is in the company restaurant or cafeteria. You know, if the employes are herded into a dreary room, where the furnishings are terrible and where the service is sloppy and indifferent, the food will not only do the employes little good but they will be sarcastic about the eating place and will also, unconsciously, get an inferiority complex through instinctively feeling that they are so cheap and unimportant that it isn't worth the company's while to feed them right.

On the other hand, if the company has

View of an Attractive Dining Room of the New York Telephone Co., New York City.

eating places that are in tune with the best restaurants which would ordinarily be patronized by the employes, then the employes are certain to get a very good impression and be better assets to the company as the result.

Yes, sir, if you ask me, I'll say that this thing of having the right sort of recreational environment for employes is of tremendous importance to all companies that are seeking to handle their personnel in the best possible way."

Public Is Honest with Utilities; Woman Demonstrates It.

A woman stepped into a telephone booth at the Hotel Olds, Lansing, Mich., one morning recently, to talk over the telephone to a friend in the city. She placed a nickel in the slot and dialed her number. The line was busy. Her nickel slid down into the receptacle for return nickels—and jangling along with it came four quarters and two dimes.

The woman was amazed at the generosity of the telephone company. She gathered up the four quarters and the two dimes and her own nickel, stepped out of the booth and appealed to the first person she saw as to what to do.

She didn't get much assistance from her queries and finally made her way to the hotel desk.

"This money isn't mine," she said, as she laid the four quarters and the two dimes down upon the desk, "I wish you would see that it gets back to its proper owners."

George L. Crooker, manager of the hotel, assured her the $1.20 would be returned to the telephone company.

Some of Those Who Installed Switchboard in Main Office and Attended Party 25 Years Later When Board Was Retired. The Full Length of the "A" Board That Was in Service in 1904 Took in the 35 Positions Shown; the Multiple Then Was 3400 Instead of the 9600 Shown.

Are Small Plants Worth Rebuilding?

Discussion of Reconstruction of Small Plants Based Upon Address at Convention of Northern Indiana Telephone Association by Frank Merril of Fort Wayne—Writer Rebuilding Plants Varying From 300 to 600 Stations

By J. W. Scott,
District Manager, Interstate Telephone & Telegraph Co., Warsaw, Ind.

Many times in the past you have heard the statement, "I would not accept a small plant as a gift and rebuild it." In fact, we know of cases where just such offers have been refused. Had those plants been in good physical condition, without debt, would there have been such generosity, or would there have been a refusal?

We all know the past condition of the small plant, locally-owned and operated, was very bad. From an earning standpoint, the average small plant is a liability, except as it may connect up with, and is a part of, a group of plants solidifying a territory and labor used to better advantage.

Again, a small plant may own toll lines to surrounding towns, which, in the grouping of through circuits, may make a small town and small plant very attractive to a company which also owns toll lines, in the development of a comprehensive and paying toll system.

The purchase and consolidation of small plants have been taking place for the past two years, another method of making the purchase justifiable.

As you have traveled over the state, observed and read the journals, you have noticed that a great number of the small plants purchased by the various corporations have been rebuilt or are re-building. In almost every instance you find better and more toll circuits radiating from the purchased small plant, into and through the territory of the purchasing and consolidating corporation.

The conclusion is forced that the small plant was not purchased and rebuilt just to furnish good service, neighbor to neighbor. It was purchased to make close neighbors of all people by means of a toll ticket and good toll circuits.

The improvement of small plants and development of the business are forging ahead almost unnoticed.

Why rebuild a small plant has not yet been answered.

By small plant, I mean plants from 250 to 500 stations, 40 to 100 of which may be in town, and the balance rural.

Really, what is the basic reason for rebuilding? Is it the service urge; a better plant as a factor in the furnishing of better service? Is it because the plant is ready to fall down, the fear of a sleet, the high cost of maintenance, or the desire to approach the commission for a raise?

The service urge before dollars is the soul of a real telephone man. He always fears a sleet storm. The best of construction will go down, but his plant is in a condition to endure unusual stress. He is ready for an appraisal at any time. Such men and plants are to be found. Often have we heard the statement, "I haven't the money to rebuild and my rates are too low."

What is the trouble? The relations with the banker and friends must be at low tide or is it the old story: an underfed and uncared cow, that has been milked until dry and so darned weak she cannot have a calf and recuperate. A new cow is necessary. Can you expect the banker to take the old cow as security?

By the neglect of the wire plant, thousands of batteries have been wasted; new telephones, generators, transmitters and receivers purchased for replacing good equipment.

The plant, the real cause of trouble, should have been rebuilt. I have yet to find a man who has reasonably maintained his plant, given good service and been progressive, who can not secure a reasonable loan for extension or improvement.

The rebuilding of a growing small town, even though the growth be slow, and the small town whose population has not changed in 20 years, comfort one. Underbuilding in the one case, and overbuilding in the other must be watched.

Why rebuild a small plant?

Because it needs it, of course. Because first-class service at the lowest maintenance cost cannot be given—a case of spend money to make money.

Rebuilding small plants? There "aint" no question; build them just as you would a large plant. Build them with as much skill and with as good material.

We all know the past history of the small plant; no preliminary engineering, as a rule no skilled construction men, no thought for quality of service to be rendered, no consideration to long life or maintenance cost.

As a rule these plants were or are owned by small community stockholders who do not know the true condition of their property or will not make appropriations.

Last August I had a managing director tell me his plant was in first-class condition in town and rural, except one-half mile of poles. Today 8,000 feet of underground cable are being installed in the town, and all wire is being renewed and new poles set outside.

The small plant has been the bane of the larger toll operating plants. Through purchases, the influence of the Bell and other causes of worry is being removed.

Rebuilding small plants: Be sure your engineering is properly done. Make an accurate map of the town, showing each lot and house. Spot each house with a telephone red and those without in black. If there are small factories slowly developing or the likelihood of a new factory, it should be taken in consideration. Population may change.

The future of a plant will prove it is far

Changing to the New Era.

The reader may be running an ice business, or a lumber yard, or he may be managing the trolley system in a town where everybody and his wife seems to have an automobile. In any case, he is likely to be confronted with problems which did not exist 10 or 15 years ago; and if he thinks of his business as he was bound to think of his business 10 or 15 years ago, almost any move he makes may result in failure.

If the ice dealer forgets the purpose of ice and tries to sell ice instead of selling the best possible refrigeration service, he will find himself hopelessly bucking the economic current. When a business man no longer serves the public as well as the public can be served, it is time for that business man to change his business.

The trolley car is needed only where it gives the best available transportation. If better service can be given by busses and jitneys, it is time for the rapid transit company to pull up its tracks and organize transportation on a better basis.

The lumberman who thinks only in terms of lumber, rather than in terms of building, is an obsolescent type of lumberman. Where brick, steel or cement can serve the builder better, the intelligent lumber dealer should be the first to know about it. To fight the new synthetic boards as a menace to his business is a suicidal policy, for he, like every other modern business man, has just one business, and that is to serve the public in the best way in which it can be served.—Benjamin A. Javits.

MRS. GUMMIDGE'S RELATIVES

By Miss Anne Barnes,

Traveling Chief Operator, Iowa Independent Telephone Association, Des Moines, Iowa

People who are continually whining are poor indeed; dog-poor, no matter how well off they may be financially. Even a feast fails to satisfy such folks.

There are two kinds of fault-finders—those who find fault with everyone except themselves, and those who are always whining about themselves. I think the latter are the most disagreeable.

Mrs. Gummidge, in the David Copperfield story, whined around in the home of her benefactors from morning until night. "I am a lone, lorn creetur' and everythink goes contrary with me," was her wail. And, of course, after a while the look that went with the wail became etched on her face in wrinkles.

Those with whom she lived had no comeback. They could not disagree with her, as she was a "lone, lorn creetur,'" of her own making. They did not dare agree with her, as that would have made her "loner" and "lorner" than ever. And it would have been useless to try to stop her. But, as a matter of fact, everyone about her had grown so accustomed to her incessant self-fault-finding that no one even seemed to hear it.

We occasionally find one of Mrs. Gummidge's relatives employed in offices and other business places. She is to be found in many small towns about the size of Hocum.

Sometimes we cannot refrain from saying to her employer, "Isn't Miss Gummidge a great trial to you?"

"Yes, indeed," he agrees. "But she has to have employment. And there is not much work for girls in towns like Hocum."

I think Mr. Employer is all wrong. What do you think?

more profitable to provide more cable capacity than necessary for a 15-year period, than the reverse.

Secure the number of houses built in the past ten years if possible. This will help decide the number of future cable pairs to provide.

Overbuildings or underbuildings is decided by a proper survey.

A study of rural circuits leading up to and to be served by the cable must be made. Several points should be taken in consideration.

How many rural residences along the lead are not patrons. Remember we have farm relief, whatever that means. Are there 12 or 14 patrons to the circuit? Will you be forced to, or desire to, split circuits to six or seven stations?

Farmers may prosper, demand private circuits, and be willing to pay for it. You may think this far-fetched, but nothing is impossible. Provide a few extra pairs. We are dealing with a small plant. Lightning may damage a pair. The lineman can cut-in another pair but can not repair the cable.

Regardless of controversy and criticism, I am building small plants with well-compounded underground cable. Conduit is used under railroads and pavement.

Do not bury cable without compound. Compound and paper cost but two to four cents, heating and applying one to two cents, and trenching five to six cents per foot.

Place cable terminals in the middle of each block, either protected or non-protected, according to exposure. Don't neglect to properly cap the riser pipe which should be well strapped to the pole. The ground end of the riser pipe should be open and free to drain, if conduit is not used. A bed of gravel, well underground, is a good thing.

Cable splicing cannot be neglected. Get an expert—it pays.

After the town is completely rebuilt and cable supplied for entry of rural lines, the job is just well under way.

To secure the benefit of your town expenditure, the toll and rural leads must be equally as good.

I do not advocate the junking of any part of a plant until its usefulness is past, or the future use warrants new construction with new material.

I do not mean that rusty-pitted, many-jointed wire should remain in a line, so long as Central can be rung part of the time or a patron can talk with effort.

I do mean that many of the poles in an old lead, crossarms, braces, etc., can be used. The future will see more and more 16- and 18-foot poles used for bracket or one ten-pin arm.

Don't fail to guy poles well. If you think it may need a guy in two or three years, do it now. Set anchors at least ten foot from butt of pole.

Many linemen need instruction on the amount of rake and how to put it in.

Recently I saw a new piece of work. The guyed pole was straight, although raked before wires were pulled. What will be the condition in another year, and the cost to pull the guy and wires?

It pays to use 4-inch by 6-inch strain plates, and other good construction material, every place.

You are spending money to save money. The saving in maintenance alone will pay interest and give you a surplus to help pay part of the money you thought you could not borrow.

Science at Chicago World's Fair Centennial Celebration

A desire to interpret science graphically to the world in its relation to a century of progress, through the medium of the Chicago World's Fair Centennial Celebration, which is planned for 1933, has resulted in trustees of the exposition enlisting the advisory aid of engineers and scientists from all sections of this country.

At the request of the exposition trustees the National Research Council Science Advisory Committee has been appointed to cooperate in formulating a basic plan which will adequately picture to the public the advances made in a hundred years as they pertain to pure and applied science.

All fields of science and engineering are represented in the personnel of the science advisory committee, the number including these men well known in electrical engineering: Dr. Frank B. Jewett of Short Hills, N. J., president of the Bell Telephone Laboratories, who is chairman of the executive committee of the advisory committee; Prof. M. I. Pupin, New York; R. F. Schuchardt, Chicago, Ill.; W. D. Ryan, Schenectady, N. Y.; and Maurice Holland, of New York, who has been named executive secretary of the advisory committee. Dr. George K. Burgess, chairman of the National Research Council made the appointments.

All the fields of engineering are represented and will aid in suggesting ways and means as to how progress in their fields may best be depicted at the fair.

The commitee will meet early this fall to submit their ideas so that they may be coordinated into one central plan, inasmuch as science will be one of the dominating features of the exposition.

The members of the executive committee of the advisory board are: Dr. Frank B. Jewett, chairman; Dr. George K. Burgess, Washington, D. C.; Gano Dunn, New York; Dr. Vernon Kellogg, Washington, D. C.; Prof. M. I. Pupin, New York; and Dr. William Allen Pusey, of Chicago.

Annual Convention of Telephone Association of Maine Next Month.

The annual convention of the Telephone Association of Maine is to be held at the Falmouth Hotel, Portland on Thursday and Friday, September 5 and 6.

A. Van Den Kerckhoven, Bethel, Me., is secretary-treasurer of the association.

England and European Telephone News

Person-to-Person Long Distance Service Throughout Europe Urged by International Chamber at Stockholm Congress—Work on International Telephony in Europe—Underground Cable—News Items Concerning England's Telephones

By TELEPHONY'S Special London Correspondent

The outstanding point which emerges from the resolutions in connection with the international telephone services passed by the International Chamber at the Stockholm Congress was an instruction to its standing committee on international telephony to proceed with its work and particularly to press for the general establishment throughout Europe of a person-to-person call.

Person-to-Person International Calls

This has been done as far as is at the moment possible, and from October 1 of the present year arrangements will come into force which will have the effect of establishing the person-to-person call throughout Great Britain and 17 other countries already in telephonic communication with us. Two other countries which have not yet announced their decision may be expected to come into line without much delay. Switzerland, for the moment at any rate, has refused.

The International Chamber has incontestably played an important part in securing this facility for users of the international telephones, and may justifiably claim no small share of the credit. It is a special satisfaction to us that the British Post Office has figured prominently in the arrangements, both by taking the initiative with other European administrations and by smoothing out difficulties.

The whole matter, however, has certainly been very much accelerated by the fact that the International Chamber has voiced the demand and that its committee on international telephony has consistently pressed the point. This example, in combination with the many other improvements in the international telephone service which have resulted from their recommendations, proves quite clearly the fact that the International Chamber can, if it wishes, get its reasonable requirements in the matter of telephone service met by the various administrations concerned.

A great deal still remains to be done, and there is still need for informed pressure of an active and persistent kind. Even during the congress itself, two calls to London and Paris made outside the limits of the rush period took 35 to 39 minutes respectively. This is a very long way from the efficiency of the long distance service in the United States where, as pointed out by Julius Barnes in his paper "Public or Private Ownership," connection with the distant point is obtained "without laying down the receiver."

The success of the work of the standing committee on international telephony is attributable to two causes:

(1) Close cooperation with the administrations as represented by the Comite Consultatif International de Communications Telephoniques a Grandes Distances (known generally as the "C. C. I. Telephones").

(2) The policy, consistently and unanimously observed by the committee as a whole, of eliminating any discussion of rates. The line taken throughout has been that business men require first and foremost, speed, efficiency, reliability and availability of telephone service, and that they are prepared to pay what is fair and reasonable for this facility, so long as they can be sure of getting it.

Personal Call For England

As from August 1, the "personal call" service has been available throughout Great Britain. Everybody interested in telephone development hopes that this will have the effect of increasing traffic over the long distance lines and, therefore, of encouraging the development of the trunk system generally.

Mr. Powell-Jones, secretary of the Telephone Development Association, states that some large industrial concerns believe that the innovation will mean a saving of at least 25 per cent on their annual telephone account.

Big French Telephone Program

Although there has been much improvement in recent years the French telephone system leaves much to be desired, and it is often easier to get a call through from Paris to New York than to be connected with a local subscriber. To remedy this state of affairs an ambitious program has been drawn up by the postal department.

Underground cables are to be laid to link up the chief towns. Marseilles and the Riviera coast towns, which from a telephonic point of view are practically isolated from London, will soon be put into direct communication by the opening—probably this month—of an underground cable between Paris and Marseilles. Later it will be extended to Nice, Monte Carlo and Mentone. It is expected that the whole program will take two years to complete.

Light Plane Radio Telephone

A light-weight wireless telephone set for use in light airplanes has been designed by the Marconi Co. to enable owner-pilots to communiciate while in flight with ground stations, as is done by commercial passenger-carrying aircraft.

The weight of the new set, known as the Marconi type A. D. 22, has been reduced to approximately 60 pounds.

Moscow's Information Service

What is probably the world's most ambitious information and service bureau is available for a small additional fee to telephone subscribers in Moscow.

The bureau undertakes to wake you every morning whenever you like, to take incoming calls on the telephone if you are out, transmit messages and generally constute itself watch-dog over your telephone. It will remind you of appointments, will give legal information and advice, and answer questions on every subject.

The cost of the service is only about $5 a year, but less than 4,000 of the 50,000 subscribers in Moscow are members.

England-Australia Telephone

It is understood that preliminary radio telephony tests between London and Australia are now progressing.

Signals from England are being listened for and reported on at the Laperousse station near Sydney; and in London listeners are receiving Australian signals and noting the times and conditions under which they are most favorably received. When the sending and receiving apparatus at both ends are properly synchronised, experiments in duplex telephony will begin.

The delays, amounting to several months, on the part of the British Post Office in sanctioning the tests is generally regretted, as successful conversations are already being carried on between Sydney and Berlin, and Sydney and Java.

Police Telephone Boxes

A conference of chief constables has submitted to the Home office a scheme for the institution of police telephone boxes throughout the Home counties (those contiguous with Lnodon). The "telephone boxing" of the Metropolitan police area has already begun; and if the Home office sanctions the new scheme, as it is expected to do, the motor bandit may find some thorns among the roses that have hitherto strewn his path.

In recent years his activities have caused Scotland Yard serious concern, the police having hitherto been hampered by lack of means of communication uniformly rapid enough to overtake a motor car with any certainty. In the not too distant future, police headquarters will receive news of a crime within a very few minutes of its occurence, and will be able not only to warn the countryside for miles around, but also to use their motor car and motor-cycle patrols to the best advantage in pursuit.

The Financial Side of Companies

Miscellaneous Items of Interest Regarding Financial Matters of Telephone Companies—New Securities Issued During Past Month—Figures From Annual Reports of Companies—Some Financing and Expansion Plans for 1929

Good Results Shown in Nebraska Company's Annual Report.

The Pawnee Telephone Co., of Pawnee City, which operates 466 city and 292 stations, a total of 758, has filed the following report of its 1928 operations with the Nebraska State Railway Commission:

Fixed investments	$88,367
Total assets	95,627
Common stock	66,750
Notes payable	16,000
Depreciation reserve	38,160
Advance subscriber payments	265
Accrued liabilities	1,078
Surplus appropriated (red)	26,259
Operating revenues:	
Exchange	17,161
Toll	3,748
Miscellaneous	148
Total	$21,057
Operating expenses:	
Maintenance	$ 6,827
Depreciation	1,067
Traffic	2,947
Commercial	5,299
Total	$16,140
Operating income	$ 4,017
Gross income	5,707
Taxes	1,080
Interest	1,273
Dividends	3,174

H. C. Hassler is president of the Pawnee company, W. M. Thompson, vice-president, and George E. Becker, secretary and treasurer.

May Earnings of Class A Companies Show Increases.

Compilations from reports of revenues and expenses of 100 telephone companies, as made to the Interstate Commerce Commission for the month of May, 1929, show gross operating revenues of $95,668,816, as compared with $87,328,041 for the corresponding month of 1928, showing an increase of 9.6 per cent. The operating income for the same months was $23,192,871 and $22,216,842, an increase of 4.4 per cent for 1929.

Operating revenues for the five months ended with May, 1929, were $466,954,583, as compared with $422,746,646, showing an increase of 10.5 per cent for this year. Operating expenses for the same period were $310,751,996 for 1929, an increase of 12.3 per cent over 1928, when they were $276,739,398. The operating income amounted to $115,484,529 for this year's five months' period, an increase of 7.9 per cent over 1928, when it was $106,990,222.

The companies had 16,296,719 company stations in service at the end of May, 1929, an increase of 6.1 per cent over 1928, when there were 15,360,040.

Complete data for the following companies of this class were not available for inclusion in this report: Central West Public Service Co. and Southwestern States Telephone Co.

Gold Notes Issued by Central West Public Service Co.

The Central West Public Service Co. recently announced an issue of three-year 7 per cent gold notes, due August 1, 1932, to the amount of $1,000,000, marketed by A. B. Leach & Co., Inc., Halsey, Stuart & Co., and Porter Fox & Co.

The Central West company owns and operates public utility properties in Iowa, Minnesota and South Dakota, with other utility properties in Nebraska and North Dakota owned through subsidiaries. Telephone service is supplied in 152 towns.

Gross earnings of the company for the 12 months ended June 30, 1929, before interest, depreciation, amortization and federal income tax, were $2,368,653.78; operating expense, maintenance and local taxes were $1,575,648.21, leaving a net income, before interest, depreciation, amortization and federal income taxes, of $793,005.57; annual interest requirement of first mortgage bonds, $348,635; annual interest re-

(*Please turn to page* 30.)

Items.	Month of May		Increase or decrease (*).		Five months ended with May		Increase or decrease (*).	
	1929.	1928.	Amount.	Ratio, Pct.	1929.	1928.	Amount.	Ratio, Pct.
Number of company stations in service at end of month	16,296,719	15,360,040	936,679	6.1	.....	.....	.....	....
Revenues:								
Subscribers' station revenues	$57,128,446	$53,226,599	$3,901,847	7.3	$281,959,976	$262,055,323	$19,904,653	7.6
Public pay station revenues	4,070,449	3,868,093	202,356	5.2	19,605,050	18,366,904	1,238,146	6.7
Miscellaneous exchange service revenues	777,915	683,780	94,135	13.8	3,825,827	3,307,673	518,154	15.7
Message tolls	27,718,435	24,608,664	3,109,771	12.6	132,290,250	114,442,847	17,847,403	15.6
Miscellaneous toll line revenues	3,534,101	2,899,668	634,433	21.9	17,227,520	14,237,535	2,989,985	21.0
Sundry miscellaneous revenues	2,403,480	1,999,442	404,038	20.2	11,867,601	10,133,923	1,733,678	17.1
Licensee revenue—Cr.	1,227,404	1,505,160	*277,756	*18.5	6,004,300	7,232,417	*1,228,117	*17.0
Licensee revenue—Dr.	1,191,414	1,463,365	*271,951	*18.6	5,825,941	7,029,976	*1,204,035	*17.1
Telephone operating revenues	$95,668,816	$87,328,041	$8,340,775	9.6	$466,954,583	$422,746,646	$44,207,937	10.5
Expenses:								
Depreciation of plant and equipment	$13,675,636	$13,333,532	$ 342,104	2.6	$ 70,589,359	$ 65,793,229	$ 4,796,130	7.3
All other maintenance	16,357,003	13,361,957	2,995,046	22.4	75,645,533	62,836,316	12,809,217	20.4
Traffic expenses	20,286,336	18,995,535	1,290,801	6.8	96,070,558	89 782,897	6,287,661	7.0
Commercial expenses	8,946 290	7,659,014	1,287,276	16.8	43,359.294	37,165,853	6,193,441	16.7
General and miscellaneous expenses	5,066,294	4,294,504	771,790	18.0	25,087,252	21,161,103	3,926,149	18.6
Telephone operating expenses	$64,331,559	$57,644,542	$6,687,017	11.6	$310,751,996	$276,739,398	$34,012,598	12.3
Net telephone operating revenues	$31,337,257	$29,683,499	$1,653,758	5.6	$156,202,587	$146,007,248	$10,195,339	7.0
Other operating revenues	$ 5,574	$ 7,467	$ *1.893	....	$ 27,384	$ 38,209	$ *10,825	....
Other operating expenses	16,046	17,972	1,926	....	78,810	77,093	1,717	....
Uncollectible operating revenues	590,581	534,703	55,878	10.5	2,934,960	2,731,294	203,666	7.5
Operating income before deducting taxes	$30,736,204	$29,138,291	$1,597,913	5.5	$153,216,201	$143,237,070	$ 9,979,131	7.0
Taxes assignable to operations	7,543,333	6,921,449	621,884	9.0	37,731.672	36,246,848	1,484,824	4.1
Operating income	$23,192 871	$22.216,842	$ 976,029	4.4	$115,484,529	$106,990,222	$ 8,494.307	7.9
Ratio of expenses to revenues, per cent	67.24	66.01	1.23	....	66.55	65.46	1.09	....

Summary of Monthly Reports of Class A Companies for May, Compiled by Interstate Commerce Commission.

Strowger Automatic Dial Telephones

The Strowger Final Selector Routiner

APART from the normal application of Strowger Switches in Automatic Telephone Exchanges perhaps their most ingenious adaptation is in the series of Strowger Routiners.

Normally they substitute the manual exchange operator in no uncertain way, but in Routiners they eclipse even the semi-skilled maintenance personnel generally accepted as being necessary for mechanism, however simple its functioning.

Thus Strowger has become virtually self-testing, and the Final Selector Routiner illustrated is an economical addition to any automatic plant, providing a speedy, reliable, and regular inspection, contact-by-contact, switch-by-switch successively over the whole of the final selector equipment. More than twenty individual tests are included in its survey, and the refusal of any switch, or member thereof, to function correctly, causes the Routiner to halt, and emit audible and visual indications, together with the precise location and nature of its findings.

Only when the matter has been satisfactorily rectified can the Routiner resume, and in this connection it is particularly exacting, as what might suffice in practice for a time, will not escape the minute scrutiny of the Routiner.

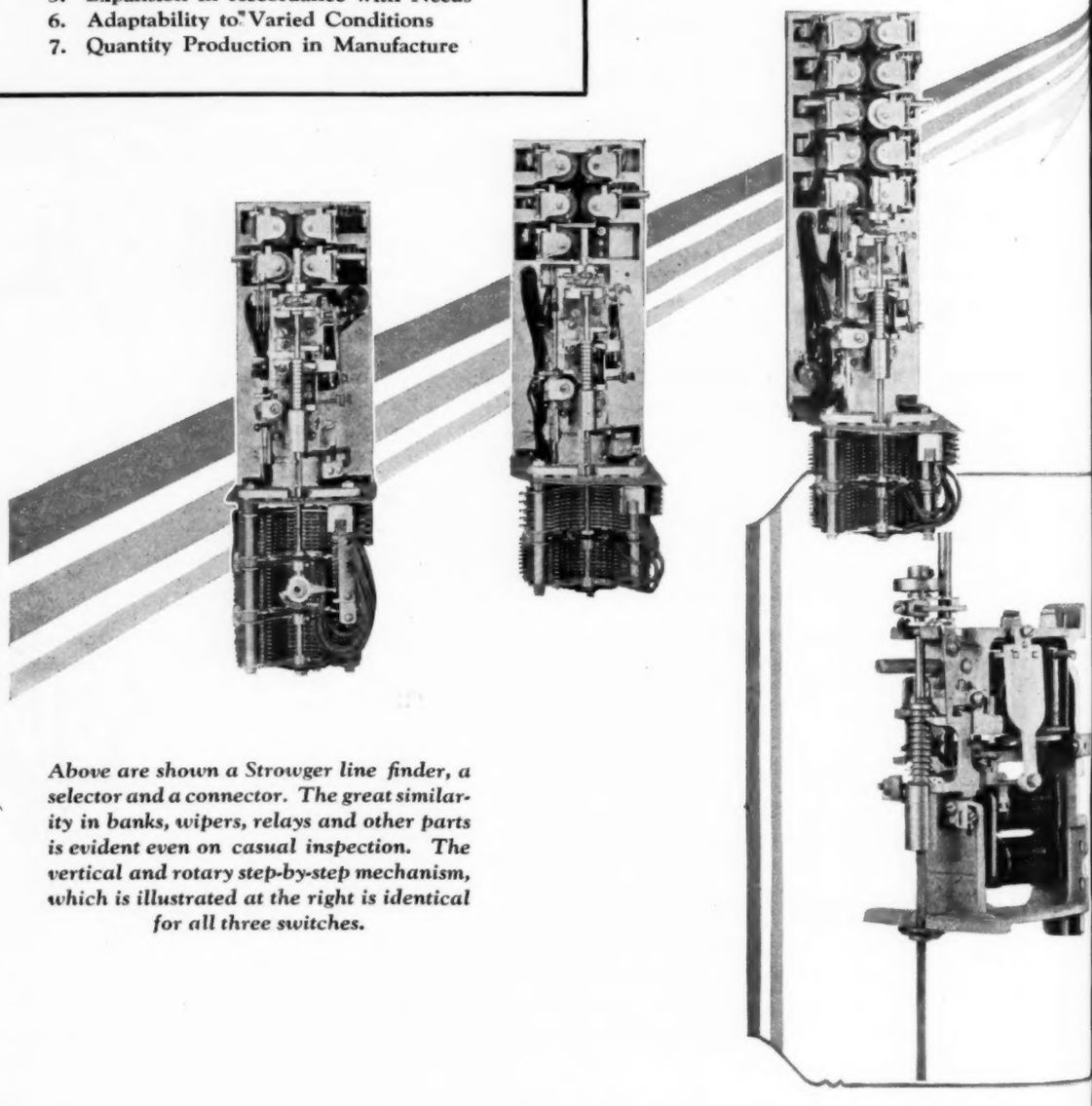
Routiners are also available for several other components of Strowger Automatic Exchange Equipment.

Automatic Telephone Manufacturing Company, Ltd.
Strowger Works, Liverpool, England
ASSOCIATED, COMPANY
International Automatic Telephone Co., Ltd., London

Small Unit Design, A Basic Strowger Principle, Gives Strowger Dial Systems These Advantages:

1. Interchangeable Switches
2. Ease of Repair
3. Interchangeable Parts
4. Low Maintenance Costs
5. Expansion in Accordance with Needs
6. Adaptability to Varied Conditions
7. Quantity Production in Manufacture

Interchangle of Strow



Above are shown a Strowger line finder, a selector and a connector. The great similarity in banks, wipers, relays and other parts is evident even on casual inspection. The vertical and rotary step-by-step mechanism, which is illustrated at the right is identical for all three switches.

STROWGE
DIAL S

gle Parts—A Feature w Automatic Switch Design

FORTY years of developing and simplifying the mechanical construction of Strowger Automatic switches, has resulted in a high degree of standardization and uniformity of the component parts. The vertical and rotary step-by-step mechanism, for instance, is identical for line finders, selectors and connectors, as well as for special modifications of these switching units. Relay parts, springs, wipers, contact banks, etc., are in many cases, identical and interchangeable for switches of all kinds.

This standardization brings with it many advantages. Repairs and replacements are simplified and made easy. Also, a surprisingly low investment in new and replacement parts is necessary as insurance for continued satisfactory service. The care with which the basic Strowger Automatic design has been followed in all switching units, and the great uniformity of parts, is one of the reasons for maintenance costs in Strowger Dial exchanges being so low as to be practically negligible.

Automatic Electric Inc.

Manufacturers of

STROWGER AUTOMATIC DIAL TELEPHONE AND SIGNALING SYSTEMS

Factory and General Offices: 1033 West Van Buren Street, Chicago, U. S. A.

Sales and Service Offices in All Principal Cities

EXPORT DISTRIBUTORS

For Australasia . Automatic Telephones, Ltd., Sydney
For Canada . Independent Sales and Engineering Co., Ltd., Vancouver
Elsewhere . The Automatic Electric Co., Ltd., Chicago

ASSOCIATED COMPANIES

American Electric Company, Inc. . . . . Chicago
International Automatic Telephone Co., Ltd., London
Automatic Telephone Manufacturing Co., Ltd., Liverpool
The New Antwerp Telephone & Electrical Works, Antwerp

UTOMATIC
STEMS

When writing to Automatic Electric Inc., please mention TELEPHONY

(*Continued from page 26.*)
quirement of 10-year convertible 6 per cent debentures and three-year 7 per cent gold notes, $157,360.

The net earnings before interest, depreciation, amortization and federal income tax, it is stated, are 1.56 times the total annual interest requirement of the entire funded debt, including this issue. The balance after deducting interest on first mortgage bonds, but before depreciation, amortization and federal income tax, is more than 2.8 times the combined annual interest requirements of the 10-year convertible 6 per cent debentures and three-year 7 per cent notes to be outstanding.

Profitable Year Reported by Monroe (Neb.) Company.

A prosperous year for 1928 is reported by the Monroe Telephone Co. of Albion to the Nebraska State Railway Commission. H. C. Bratt is president and manager, J. H. Agee, vice-president and W. L. Lemon, secretary and treasurer. The figures are as follows:

Fixed investments	$248,707
Total assets	264,453
Capital stock	139,443
Notes payable	22.400
Accounts payable	3,512
Depreciation reserve	91.532
Subscriber advance payments	12,910
Accrued liabilities	869
Profit and loss	3,786
Operating revenues:	
Exchange	$ 53,508
Toll	10,714
Miscellaneous	1,830
Total	$ 66,052
Operating expenses:	
Maintenance and depreciation	$ 24,718
Traffic	15,454
Commercial	9,923
Total	$ 50,095
Net operating income	15,957
Total income	15,957
Taxes	2,472
Interest	1,230
Miscellaneous	1,323
Dividends	8,367
Profit and loss	2,565

The company operates the following stations: Albion, 1,140; Loretto, 56; Genoa, 593; Lindsay, 171; Monroe, 178; Newman Grove, 664; Platte Center, 295; making a total of 3,097.

Associated T. & T. Co. Announces Issue of Stock.

The Associated Telephone & Telegraph Co. recently placed on sale 30,000 shares of $6 first preferred stock. The Telephone Bond & Share Co. and Dawes & Co. are marketing the issue. The Associated company represents an alliance of American and British financial and operating interests of long and successful experience in the telephone business and allied industries.

Gross earnings of telephone properties and gross profits on sales of the company for the year ended December 31, 1928, were $10,701,622.52; operating maintenance, selling and general expenses and local and federal income taxes, $5,999,883.76, leaving $4,701,738.76 for net earnings before depreciation; $1,663,878.19 allotted to depreciation and other reserves leaves $3,037,860.57 after depreciation.

Annual interest charges, annual dividends on subsidiary preferred stocks not owned, earnings applicable to minority stock interests, other deductions, amounted to $1,972,878.44, leaving a consolidated net income available for dividends on the first preferred stock of $1,064,982.13. These earnings, it is stated, are more than 2½ times the total dividends on the first preferred stocks including the dividends upon this issue.

A. T. & T. Co. Financial Figures for Six Months' Operation.

The gross earnings of the American Telephone & Telegraph Co. in June amounted to $8,827,699, as compared with $8,329,665 in the same month last year. Operating income was $2,895,900, against $3,037,034, according to the company's report to the Interstate Commerce Commission covering revenue from operations only.

For the first half of 1929 gross earnings were $54,696,001, against $48,495,536 in the same period last year. Operating income was $20,314,529, against $18,924,770.

The comparative figures are:

	1929	1928
June gross	$ 8,827,699	$ 8,329,665
Net after taxes	3,426,073	3,612,229
Net oper. income	2,895,900	3,037,034
Six months' gross	54,696,001	48,495,536
Net after taxes	24,689,016	23,064,895
Net oper. income	20,314,329	18,924,770

Glenwood Company (Neb.) Has Small Net Revenue.

The Glenwood Telephone Co., which operates in excess of 3,200 stations in exchanges at Holstein, Roseland, Ayr, Bladen, Blue Hill, Rosemont, Cowles, Guide Rock and Reeves, filed the following report for 1928 with the Nebraska State Railway Commission:

Fixed investments	$ 97,616.00
Total assets	112,826.00
Common stock	400.00
Accounts payable	2,009.00
Notes payable	28.00
Depreciation reserve	37,851 00
Advance subscriber payments	605.00
Surplus appropriated	28.705 00
Profit and loss	2,965.00
Operating revenues:	
Exchange	24,705.00
Toll	1,408.00
Miscellaneous	62.00
Total	$26,175.00
Operating expenses:	
Maintenance	$ 7,900.00
Depreciation	1,357.00
Traffic	10,061.00
Commercial	3,893.00
Total	$23,210.00
Net operating income	$2,964.80
Profit and loss	$2,964.80

L. C. Peisinger is president of the Glenwood company; C. W. Born, vice-president; Leland Hall, secretary, and W. B. Hargleroad, treasurer.

Annual Report of Nebraska Company to State Commission.

The Madison Telephone Co., one of the Continental group, of which J. H. Agee is president and C. E. Pearse, secretary, has filed its annual report with the Nebraska State Railway Commission. It operates a total of 2,675 stations, with exchanges at Madison, Neligh, Brunswick, Orchard, Royal and Tilden. The report shows:

Fixed investments	$226,539
Total assets	243,067
Common stock	50,000
Notes payable	84,696
Accounts payable	3,787
Depreciation reserve	67,732
Advance subscribers' payments	1,719
Profit and loss	33,725
Operating revenues:	
Exchange	$ 50,730
Toll	7,018
Sundry sales	134
Miscellaneous	937
Total	$ 58,819
Operating expenses:	
Maintenance	$ 9,679
Depreciation	11,937
Traffic	12,364
Commercial	10,637
Total	$ 44,618
Net	$ 14,201
Miscellaneous	284
Total operating income	14,485
Taxes	4,133
Interest	4,338
Miscellaneous	446
Dividends	6,934
Profit and loss (red)	1,365

Gold Bonds and Notes of Service Company Offered.

The Missouri Valley Public Service Co. recently placed on sale its 10-year first lien 6 per cent gold bonds, series "A" to the amount of $700,000, to mature July 1, 1939, and also its one-year 5 per cent gold notes to the amount of $500,000. De Wolf & Co. of Chicago are marketing the issue.

The Missouri Valley Public Service Co. will furnish, through subsidiaries, telephone, electric light and power service to 169 communities with a total estimated population in excess of 175,000 in the states of Missouri, North Dakota and South Dakota. The communities to be served are tributary for the most part to Kansas City and St. Louis.

The consolidated earnings statement of the properties to be owned, for the year ended May 31, 1929, after giving effect to adjustment of certain non-recurring expenses, shows gross income (including gross tolls) of $309,527.85; and net income available for interest, depreciation and federal taxes, of $118,222.72, or more than

BROWN

CREOSOTED YELLOW PINE PRODUCTS

300,000 Acres One of the largest

Individual Holdings in America

The "Cruiser" says: nature made these trees ideal for pole use. It requires only the BROWN expert preparation and treating to make them unequalled for distribution service.

Pole Production that eliminates "shopping"

The BROWN large holdings of dense Southern Yellow Pine timber lands eliminate the necessity for this company to "shop" for poles on the market. This elimination of the usual expense of "shopping" is just one of the savings that make possible the BROWN new standards of quality and service in pole production.

The BROWN organization operates entirely on the principle of "one-organization-straight-through." More and more this principle is being recognized as the most advantageous one for any company in any industry that desires to serve its customers most efficiently.

BROWN has the facilities for supplying your needs for Creosoted Yellow Pine poles exactly as wanted and when wanted. Undivided responsibility from the woods to the loading of outbound railroad cars assures quality, uniformity and service to the pole user.

Place your next pole order with the BROWN organization.

CREOSOTING DEPARTMENT

W. P. BROWN & SONS LUMBER CO., INC.

4th & K Streets, Louisville, Ky.

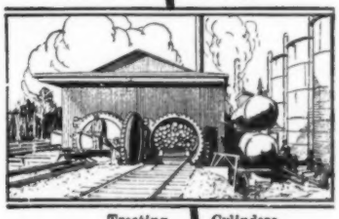
Telephone—Magnolia 2407

ONE ORGANIZATION *straight through*

Forest Operations

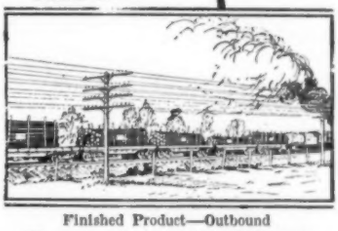
Enroute to plant

Framing and Inspection



Treating Cylinders

Black Yard



Finished Product—Outbound

Producing operations and treating plant at Brownville Alabama

2.8 times the maximum annual interest requirements of the bonds of this issue to be presently outstanding.

New England Bell Shows Continued Gain in Net.

The New England Telephone & Telegraph Co. reports for the quarter ended June 30, 1929, a net income of $3,047,554 after taxes and charges, equivalent to $2.75 a share earned on 1,106,610 shares of stock. This compares with $2,871,641 or $2.59 a share on 1,106,610 shares in preceding quarter and $2,921,644 or $2.64 a share on 1,106,474 shares in June quarter of 1928.

Net income for first half of 1929, totaled $5,919,195 after the foregoing charges, equal to $5.34 a share on 1,106,610 shares comparing with $5,319,932 or $4.80 a share on 1,106,474 shares in first half of the previous year.

The statement for quarter ended June 30, 1929, compares as follows:

	1929.	1928.
Gross revenue	$18,787,554	$17,476,575
Net after taxes	4,355,848	4,103,574
Surplus after charges.	3,047,554	2,921,644
Dividends	2,213,554	2.212,948
Surplus	$833,000	$708,696

Six months ended June 30:

	1929.	1928.
Gross revenue	$35,918,424	$34,179,017
Net after taxes	8,486,718	7,721,068
Surplus after charges.	5,919,195	5,319,932
Dividends	4,426,778	4,425,896
Surplus	$1,492,417	$894,036

Company Shows Good Condition at End of 1928.

The Deshler Telephone Co., of which F. J. Bentmeyer is president and manager, L. E. Krutz, vice-president, and R. W. Rodenberg, secretary and treasurer, reported to the Nebraska State Railway Commission for 1928 as follows:

Fixed investments	$21,835
Total assets	26,843
Capital stocks	10,250
Depreciation reserve	731
Advance subscriber payments	10
Assessments	4,070
Surplus appropriated	11,782
Operating revenues:	
Exchange	$ 4,696
Toll	508
Total	$ 5,204
Operating expenses:	
Maintenance and depreciation	$ 1,500
Traffic	1,496
Commercial	508
Total	$ 3,504
Net operating income	$ 1,700
Total income	$ 1,731
Taxes	190
Profit and loss	$ 1,541

The company operates 255 stations at Deshler, Neb.

Pennsylvania Bell Earnings Show Decrease in Net for Half Year.

The Bell Telephone Co. of Pennsylvania reports for six months ended June 30, 1929, net income of $6,172,673 after taxes and charges, equivalent to $30.86 a share earned on 200,000 shares of 6½ per cent preferred stock. This compares with $6,432,779, or $32.16 a share, on the preferred in the first half of 1928. All of the common stock is owned by the American Telephone & Telegraph Co.

The net income for the second quarter of 1929 was $3,012,986 after the foregoing charges, equal to $15.06 a share on the preferred, comparing with $3,159,687, or $15.79 a share, on the preferred in the preceding quarter and $3,300,294, or $16.50 a share, in the second quarter of the previous year.

The income account for the six months ended June 30, 1929, compares as follows:

	1929.	1928.
Gross	$35,290,327	$32,627,386
Net after taxes	9,229,864	9,147,119
Total income	9,742,811	9,626,654
Surplus after charges.	6,172,673	6,432,779
Preferred dividends	650,000	650,000
Common dividends	3,200,000	3 200,000
Surplus	$2,322,673	$2,582,779

Crownover, at Sargent, Neb., Makes Creditable 1928 Report.

The Crownover Telephone Co., which operates an exchange at Sargent, with 322 stations, and is officered by J. E. Grint, president; W. R. Dunbar, vice-president; Alice E. Grint, secretary, and D. E. McGregor, manager, reported as follows to the Nebraska State Railway Commission for 1928:

Fixed investments	$31,205.00
Total assets	38,501.00
Common stock	28,429.00
Accounts payable	377.00
Depreciation reserve	5,825.00
Advance subscribers' payments	250.00
Surplus appropriated	2,207.00
Operating revenues:	
Exchange	$ 7,673.00
Toll	2,845.00
Miscellaneous	166.00
Total	$10,686.00
Operating expenses:	
Maintenance	$ 4,509.00
Depreciation (red),	1,125.00
Traffic	1,793.00
Commercial	2,814.00
Total	7,992.00
Net operating income	$ 2,694.00
Total income	2,694.00
Dividends	1,137.00
Profit and loss	1,387.00

Associated Telephone Utilities Co. Has Option on Union Company.

The Associated Telephone Utilities Co., Madison, Wis., last week secured an option to acquire, through merger, the stock of the Union Telephone Co., of Chicago. This company owns and operates a system of telephone properties serving a population in excess of 250,000 in the states of Kentucky, Illinois, Michigan, Missouri, Nebraska, and Wyoming. The system comprises 56 exchanges, over 33,000 telephone stations and in excess of 500 miles of toll lines. H. B. Crandell is president of the Union company.

Service is furnished by the Union Telephone Co. through subsidiary companies, to Lexington, Ky., Warrensburg, Sweet Springs, Holden and Lexington, Mo. The properties served in Nebraska and Wyoming are in the North Platte River Valley territory running a distance of 175 miles from Ogallala, Neb. to Guernsey, Wyo., including the cities of Scottsbluff, Gehring, Lyman, Bayard and others. In Illinois and Michigan, service is furnished at Stronghurst, Kirkwood and Biggsville, Ill. and Manistique and L'Anse, Mich.

Company at Stella (Neb.) Makes 1928 Report to Commission.

The Stella Telephone Co. of which R. A. Clark is president and manager, with H. F. Clark vice-president and A. E. Camblin, secretary and treasurer, reported the following for 1928 to the Nebraska State Railway Commission:

Fixed investments	$35,703
Total assets	52,699
Capital stock	19,475
Notes payable	11,567
Accounts payable	2,846
Depreciation reserve	11,326
Advance subscriber payments	281
Accrued liabilities	799
Surplus appropriated	5,622
Profit and loss	742
Operating revenues:	
Exchange	$ 9,856
Toll	756
Total	$10,612
Operating expenses:	
Maintenance and depreciation	$ 3,859
Traffic	1,800
Commercial	3,140
Total	$ 8,799
Net operating income	$ 1,814
Total income	1,814
Taxes	247
Interest	825
Profit and loss	742

The company operates the following stations: Stella, 258; Shubert, 222; a total of 480.

Six-Month Earnings of Southwestern Bell Telephone Co.

The operating income of the Southwestern Bell Telephone Co. for the first half of 1929 amounted to $11,148,867, against $10,100,833 for the same period of 1928.

The gross earnings were $41,930,725, against $37,826,532 for the first six months of 1928.

Cozad Mutual Company (Neb.) Submits 1928 Statement.

The Cozad Mutual Telephone Co., of which L. H. Fochtman is president, F. W. Andersen, vice-president, T. J. Brownfield, secretary and treasurer, and R. G. Miller, manager, reported to the Nebraska Railway Commission that it operates 415 stations of its own and switches 520 from

2 feet deeper

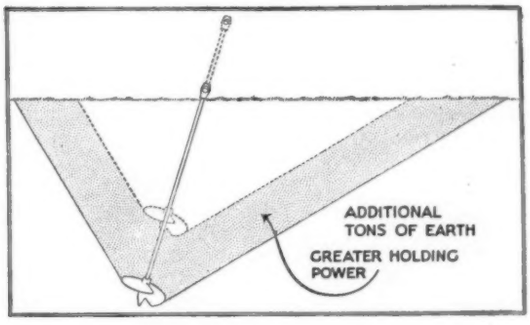
from the same length anchor—

much greater holding power!

Note uncomfortable position of men screwing down old style screw anchor. Speed is retarded. Note how wrench handle catches on ground while anchor rod is still two feet above ground.

Installing new Matthews Scrulix Anchor with new style Matthews Wrench. Handle can be moved up and down wrench and set at comfortable position for men to screw down anchor. Note how end of anchor rod is only slightly above surface of ground—anchor is down at least two feet deeper than other anchor. Men work in comfortable position during entire installation. Deeper installation means far greater holding power!

The helix of Matthews Scrulix Anchors is so designed that under strain the lines of force radiate from the anchor helix at a 45 degree angle so that hundreds of cubic feet of earth hold the anchor in place. This principle is what gives Matthews Scrulix Anchors their tremendous holding power in comparatively soft earth. Deeper installation gives tons of earth more holding power.



The shaded portion shows how greatly the cone of earth is increased in size by deeper installation, giving much greater holding power.

W. N. MATTHEWS CORPORATION
Engineers and Manufacturers
3720 Forest Park Blvd., St. Louis, Mo.
Offices in all principal cities

THE NEW PREHEATED CERTIFIED MALLEABLE

MATTHEWS
SCRULIX ANCHORS

Cozad, and gave the following financial statement for 1928 operations:

Fixed investments	$31,172
Total assets	34,290
Common stock	13,358
Notes payable	7,400
Depreciation reserve	6,109
Advance subscriber payments	26
Accrued liabilities	653
Surplus appropriated	3,064
Profit and loss	632
Operating revenues:	
Exchange	12,601
Toll	1,252
Miscellaneous	395
Total	$14,249
Operating expenses:	
Maintenance	$ 2,289
Depreciation	1,311
Traffic	3,488
Commercial	3,963
Total	$11,051
Operating income	$ 3,199
Net income	2,653
Taxes	578
Interest	327
Dividends	1,106
Profit and loss	632

Nebraska Company Makes 1928 Report to Commission.

The Citizens Telephone Co. of Malmo, of which E. C. Hunt is president and manager, H. A. Cheneym vice-president, and V. H. Hunt secretary and treasurer, reported on its 1928 operations as follows to the Nebraska State Railway Commission at Lincoln:

Fixed investments	$82,618
Total assets	89,311
Capital stock	13,000
Notes payable	1,848
Accounts payable	290
Depreciation reserve	42,789
Advance subscriber payments	3,636
Accrued liabilities	2,154
Other credit accounts	9,088
Surplus appropriated	17,616
Profit and loss (red)	1,109
Operating revenues:	
Exchange	$16,334
Toll	1,287
Miscellaneous	232
Total	$17,853
Operating expenses:	
Maintenance	$ 6,665
Depreciation	1,464
Traffic	3,497
Commercial	3,509
Total	$15,134
Net operating income	$ 2,719
Taxes	420
Interest	208
Dividends	3,200
Profit and loss (red)	1,109

The company operates the following stations: Malmo 186; Prague 231, Morse Bluff 169; Western 262, making a total of 848.

Illinois Bell Earnings Show Big Increase for Half-Year.

The statement of Illinois Bell Telephone Co., for six months ended June 30, 1929, shows net income of $7,067,589, after taxes and charges, equivalent to $6.48 a share (par $100) on 1,100,000 shares of stock. This compares with $6,128,656, or $5.57 a share in the first half of 1928.

The net income for the quarter ended June 30 amounted to $3,526,437, after charges equal to $3.20 a share, comparing with $3,541,132, or $3.22 a share in the preceding quarter, and $3,132,293, or $2.85 a share, in the June quarter of the previous year.

Current Price Quotations on Listed Telephone Stocks.

	August 17 High.	Low.	Last.
American Telephone & Telegraph Co, (9)	295	283¾	293
Associated Telephone Utilities Co.	41⅞	40½	40⅝
Chesapeake & Potomac Telephone Co.	115¼	115¼	115¼
Cincinnati & Suburban Bell Telephone Co. (4½)	126	124¾	126
Community Telephone Co.	29⅜	28¾	29⅜
International Telephone & Telegraph Corp.	120	117⅛	119⅝
New York Telephone Co., pfd. (6½)	111½	111½	111½
Pacific Telephone & Telegraph Co.	209⅞	200	209⅞
Union Telephone Co.	28½	25¾	28½
Western Continental Utilities, Inc.	23⅞	23⅞	23⅞
Western Power, Light & Telephone Co.	32	32	32

OVER THE COUNTER QUOTATIONS.

	Aug. 17. Bid.	Asked.	Aug. 16. Bid.
Associated Telephone & Telegraph Co., pf. (7)	101	105	101
Associated Telephone & Telegraph Co. (D), (4)	53	56	53
Associated Telephone Utilities Co., pf. (6)	88	..	..
Associated Telephone Utilities Co., pf. (7)	98	..	..
Bell Telephone Co. of Canada (8)	173	176	173
Bell Telephone Co. of Pennsylvania (6.50)	114	117	114
Cuban Telephone Co. (8)	130	...	130
Cuban Telephone Co., pf. (7)	109	...	109
Lincoln Telephone & Telegraph Co. (8)	125	...	125
Diversified Investments, Inc., pf. (7)	100	103	100
Mountain States Telephone & Telegraph Co. (8)	153	156	153
New England Telephone & Telegraph Co. (8)	163	167	163
Northwestern Bell Telephone Co., pf. (6.50)	106	108	106
Ohio Bell Telephone Co.	112	114	112
Peninsular Telephone Co. (7)	127	...	127
Peninsular Telephone Co., pf., A (7)	103	106	103
Porto Rico Telephone Co. (8)	85	...	85
Porto Rico Telephone Co., pf. (8)	100	...	100
Rochester Telephone Corp., 1st pf. (6.50)	106	109	106
Southern Bell Telephone & Telegraph Co., pf. (7)	116	119	116
Southern New England Telephone & Telegraph Co. (8)	200	206	200
Telephone Investment Co.	59	61	..
Tri – State Telephone & Telegraph Co.	190	...	190
Tri – State Telephone & Telegraph Co., pf. ($10 par value, 60c)	9¼	10½	9¼

Small Nebraska Company Shows Good Profit for 1928.

The Farmers' Mutual Telephone Co. of Ord, of which Alvin Blessing is president, J. H. Agee, vice-president, and R. O. Parks, secretary and manager, has made the following report to the Nebraska State Railway Commission for 1928 operations:

Fixed investments	$68,407
Total assets	88,136
Capital stock	36,211
Accounts payable	32,728
Depreciation reserve	17,973
Subscribers' advance payments	354
Accrued liabilities	527
Profit and loss	29,342
Operating revenues:	
Exchange	$25,468
Toll	3,719
Miscellaneous	587
Total	$29,774
Operating expenses:	
Maintenance and depreciation	$ 7,077
Traffic	8,319
Commercial	8,041
Total	$23,437
Net operating income	$ 6,337
Total income	6,706
Taxes	900
Dividends	2,173
Profit and loss	$ 3,445

The company operates 708 stations at Ord and 422 at Bunwell, making a total of 1,130.

Pacific Bell's June Report to Interstate Commission.

The report of the Pacific Telephone & Telegraph Co. to the Interstate Commerce Commission, excluding subsidiaries, shows gross operating revenue of $6,086,190 for June, compared with $5,589,825 for the same month last year, and net operating income of $1,338,325 against $1,341,245.

Gross revenue for the first half of 1929 was $35,708.830, against $32,138,306 for the same period last year, and operating income was $7,488,024 against $6,602,438.

The gross operating revenues for the entire Pacific company system were $8,385,515 in June of this year against gross operating revenues of $7,701,777 in June of 1928. Although net earnings of the system, after interest, were $7,752,914 for the first half of 1929 as compared with $7,008,213 for the first half of 1928, net earnings in June for the present year were but $1,297,821, a decrease of $110,820 from the $1,408,641 of net earnings in June of 1928.

The gain in gross, according to the company, follows increased development and expansion in business.

A. T. & T. Stock and Convertible Bonds Set New Record

Stock of the American Telephone & Telegraph Co. rose briskly on August 17 to a new high record of 295. At that level the 13,161,761 shares outstanding on July 1 had a market value of $3,882,719,495. On August 20, the stock closed at 295½ after reaching a high of 298.

Last week's advance of the stock, on which $9 a year is paid in dividends, was accompanied by resumed rumors of some special dividend or stock action.

These were again denied by President Walter S. Gifford both as to fact and as to intention. Bankers, however, have said

(*Please turn to page* 44.)

THE BELL SYSTEM IS BUILDING AHEAD OF THE GROWTH OF THE COUNTRY

This is the telephone's job and goal

An Advertisement of the
American Telephone and Telegraph Company

THE United States is developing a new civilization. The telephone is an indispensable element in it. The Bell System is building ahead of the growth of this civilization. In 1929 the telephone budget for land and buildings is 54 million dollars, with new buildings rising in 200 cities. New equipment for central offices will cost 142 millions; exchange lines 120 millions; toll lines 119 millions.

The Bell System's total expenditure for plant and service improvements this year will be 559 million dollars.

This outlay is required because the telephone is a universal servant of this democracy. Business uses it to create more prosperity. Homes use it for comfort and protection, for keeping friendships alive and enriching life. Its general use enables each personality to extend itself without regard to distance.

The telephone ideal is that anyone, anywhere, shall be able to talk quickly and at reasonable cost with anyone, anywhere else. There is no standing still in the Bell System.

Maida Vale Exchange, London, Automatic

Further Conversion of London's Telephone System to Director Working—Description of More Important Features of the Equipment Which Is the Latest Link in Automatic System Being Installed in the World's Largest City

By A. H. Devonshire,
Siemens Brothers & Co. Ltd., Woolwich, England

Maida Vale automatic exchange, forming another link in the "director" network of London, England, was successfully brought into service at 2 o'clock p. m., on Saturday, July 20, and the old common battery manual equipment cut out of service. This equipment constitutes the third of a series to be manufactured and installed by the British firm of Siemens Brothers & Co., Ltd., Woolwich, for the London automatic network.

Fig. 1.—General View of the Manual Switchroom in Maida Vale Exchange, London, England.

The initial equipment caters for 7,500 lines (preselectors), 7,600 multiple numbers, and 100 auxiliary numbers for P. B. X. groups exceeding 10 lines.

All manual services, comprising "O" calls, information, service P. B. X., interception and supervisors, are dealt with at a 35-position manual "A" board. Trunk calls to subscribers found engaged at the cordless "B" board are transferred and completed at the manual "A" board.

A general view of the switchroom, Fig. 1, shows the "A" board to the left and the "B" board to the right, while in the center of the picture is seen the meter cabinet, supervisor's desk and fault panel.

Maida Vale is the first London exchange having satellites. It will be the parent exchange for three other exchanges (Hendon, Edgware and Colindale) which will operate as discriminating satellites. By means of discriminating selectors at these exchanges, it is determined whether the call is to a local subscriber or to one in another exchange. In the former case the call is routed via first and second numerical selectors in the satellite exchanges.

For other than local calls, one of the incoming first code selectors at Maida Vale is taken into use and the call is completed via the director equipment and code selectors at Maida Vale. By this means a reduction is effected in the switching equipment at the satellite exchanges and also in junction lines which otherwise would have to be provided between these smaller exchanges and any other exchanges in the area.

There are 75 line units, each fully equipped with 100 preselectors, but only eight have the full equipment of 32 final selector banks. The remaining 67 are partially equipped with 16 final selector banks. Separate test and trunk offering switches are provided to which success is obtained from six test distributors and five T. O. distributors, respectively.

There are 79 "A" digit selectors with the usual grouping arrangements, to 132 directors. Each director is a self-contained unit arranged for jacking-in. Fig. 2 is a genreal view of a group of director boards and associated automatic routining equipment. Each board has a capacity for 20 directors, with 10 directors per side.

Automatic routiners are provided for testing first code selectors, coders, senders, directors, C. C. I. repeaters and "B" position junction relay sets.

A better view of the director routiner is shown in Fig. 3. Its compactness will be appreciated, when it is borne in mind that the overall width of the rack is only 1 ft. 3 ins.

Two types of P. B. X. final selectors are provided for groups of 2-10 lines and for 11-20 lines, respectively. The 2-10 P. B. X. groups provide the same facilities and features as those originally introduced in Siemens Brothers No. 16 automatic equipment, and enable ordinary lines to be connected to any number not reserved for a P. B. X. line. The 11-20 groups provide for P. B. X. lines only of this size, and have the same operating

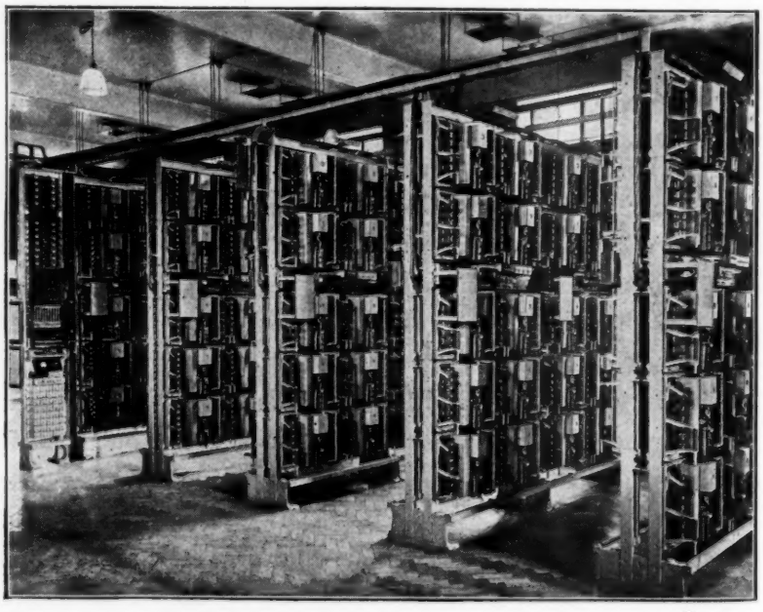


Fig. 2.—The Director Boards and Associated Automatic Routiner Equipment.

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MONEY BACK GUAR-ANTEE

Converts 60 Cycle Lighting Current to 20 Cycle Ringing Current

NO RADIO INTERFERENCE

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equipped with Filter and be convinced.

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That is why *Crapo* Galvanized Products are outlasting all others in actual service. That is why users, year after year, are reducing maintenance costs to new low levels....

Crapo Galvanized Telephone Wire and Strand can be obtained from representative Jobbers. Insist upon *Crapo* quality! You can identify it by the *Crapo* Tag....

Indiana Steel & Wire Co.,
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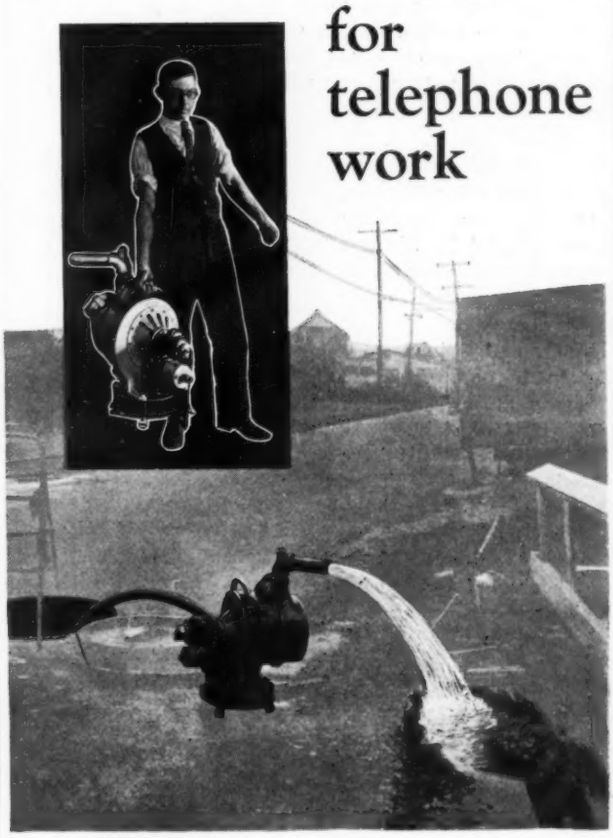
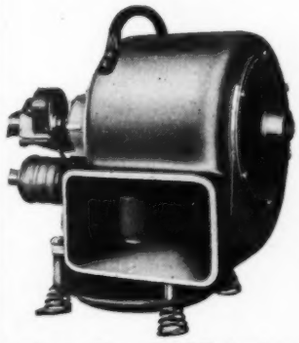
Homelite Helpers for telephone work



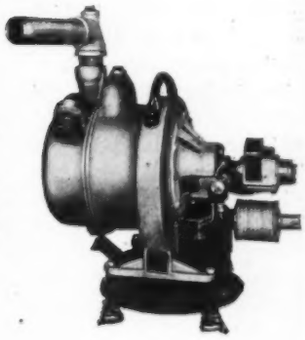


Homelite Blower

Portable by one hand. Weighs 75 lbs. Capacity up to 2000 cu. ft. of air per minute.

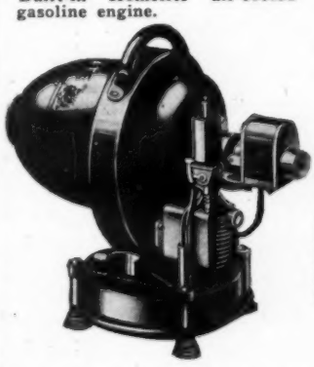
Powered by built-in Homelite air-cooled gasoline engine.

Measures 22"x23"x16".



Homelite Self-Priming Centrifugal Pump

Portable by one hand. Weighs less than 100 lbs. Capacity up to 6000 gal. per hr. Volumn or seepage. No foot valve. Built-in Homelite air-cooled gasoline engine.



Homelite Generator

Portable by one hand. 110 volts direct current. Weighs 110 lbs.

Measures 21"x21"x14".

Built-in Homelite air-cooled gasoline engine.

HOMELITE CORPORATION

73 Riverdale Ave., Port Chester, N. Y. 3739

conditions as in other London exchanges.

The banks of the 11-20 P. B. X. groups are cabled to the manual I. D. F., where they are cross-connected to tie cable circuits to the line units on which the associated preselectors are mounted, the facilities being such that about 5 per cent of the preselectors on each line unit are assigned for P. B. X. lines. Space does not permit of numerating other features, except the one particular economy effected by Siemens Brothers in the number of relays used in earlier automatic circuits, e. g.

Group selectors have four relays instead of five.

Ordinary finals have seven relays instead of eight.

2-10 P. B. X. finals have eight relays instead of nine.

Duplicate batteries of 25 cells are provided, plated for a discharge capacity of 5,076 ampere-hours and designed for a 24-hour exchange supply. A set of seven C. E. M. F. cells to carry 11 amperes, provide for the 30 volts P. B. X. power leads, but C. E. M. F. or end cells for regulating the exchange bus bar voltages are not supplied.

Duplicate motor-generator sets of 46-kilowatt output serve either for operating the exchange on a charge-discharge basis or with battery floating. The power circuit provides for single pole switching as now standardized by the British Post Office. The simplifications thereby effected are apparent from the size of the power board which measures only 8 feet in length, including the ringer panel.

The ringing machines and interrupters are in duplicate, one being driven from the public supply and one from the battery. While the mains-driven ringer is in use, arrangements are made to provide for its disconnection on failing from any cause, and to switch in the battery-driven ringer automatically.

Fig. 4 shows a typical unit for distributing power to the switch racks, a number of which are distributed throughout the plant.

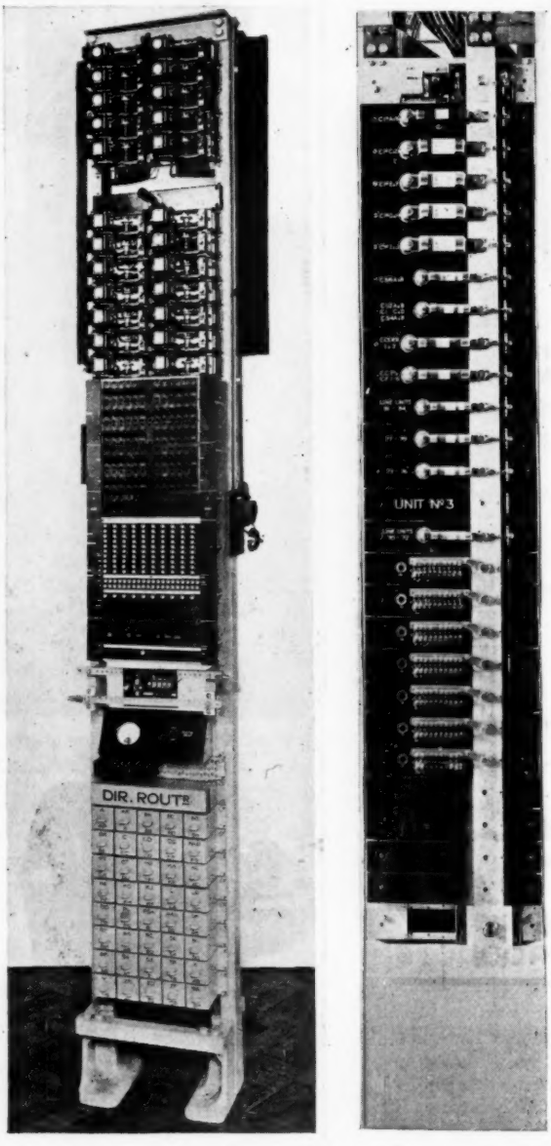


Fig. 3.—The Automatic Routiner for Directors. Fig. 4.—Power Distribution Unit in Maida Vale Exchange.

Bees Attack Troubleman When He Opens Cable Terminal Box.

J. K. Roberts, outside repair man for the Pacific Telephone & Telegraph Co. in Portland, Ore., reported for work one day early this month with numerous welts on his hands and face as a result of an encounter with bees.

Mr. Roberts was working on what is known as a "B" box on a pole at Milwaukee and Henry streets, in Portland. When he opened the door of the box he found a swarm of bees had taken up their residence there. Before he could retreat in some disorder, he was stung several times. A smudge was used to rout the bees from the box. The plant men are now wary of opening cable boxes.

Northern Indiana Meeting Next Month at Lake Manitou.

The Northern Indiana Telephone Association has scheduled a two-day meeting for Wednesday and Thursday, September 4 and 5 at Lake Manitou, Rochester. Headquarters will be at Fairview Gardens and hotel.

The meeting will start at 2 o'clock P. M. on September 4 with a joint meeting of telephone men and women. On the next day separate sessions will be held for traffic people and the managers. Between meetings there will be various forms of entertainment provided, including dancing, boatride on the lake, and an excellent dinner on the evening of September 4.

Iowa State College Offers Unique Service to Industries.

Every year each of the industries is confronted with the problem of securing those engineering college graduates who have the proper qualifications to fit in with the requirements of their organizations. Representatives of many industries visit the engineering colleges and arrange personal interviews with the prospects, while others encourage the applicant to send a statement of his experience, training and qualifications to them. With any plan, it is difficult for the company representatives to choose the men wisely.

The personnel office of the division of engineering of Iowa State College, Ames, Iowa, has improved this condition. Securing the cooperation of the engineering student council, this office has published for the senior engineers of the nine departments a "Personnel Service Leaflet." This leaflet is 3¾ ins. by 6¾ ins. and punched to fit a standard loose-leaf cover. High grade enamel paper stock is used with the information for one student printed on one side of each leaflet.

The leaflet shows a half-tone print of the student, gives his name, course and date of graduation. Further statements of training, experience and qualifications are as follows:

Major interests during college course; college and home address; personal data; age, height, weight, descent, church affiliations, state of health; high school information; location; activities; college information; activities; approximate expenses earned, if any; practical experience, company, location, amount of time spent in their employ; and date when available for employment.

Fifty sets of these leaflets were sent to the leading industries early in January. The sets were inserted in leather covers furnished to the industry by the college. Each year refills will be sent to these companies and new sets to other industries that are interested. The leaflets for the class of 1930 will be available January 1, 1930.

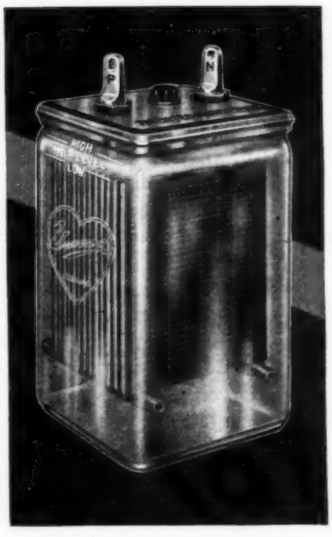
The personnel work of the engineering division of the Iowa State College is under the supervision of Frank D. Paine, personnel officer, and Merrill R. Good, assistant personnel officer.

British Foreign Telephone Traffic Shows Big Increase.

England's incoming and outgoing international calls during the 12 months to March 31, 1929, reached almost 1,000,000, an increase of 34 per cent on the international calls for the year to March, 1928. Inland trunk calls now number over 100,000,000 a year.

Gives *the best telephone service*

UNIVERSAL Telephone Batteries are made of the highest quality materials and with every new improvement. They are noted for their long life and satisfactory service.



Many features make them particularly adapted to telephone service.

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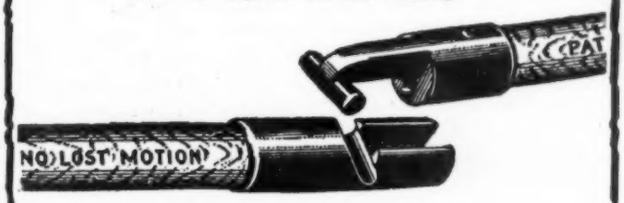
COPE Quick Coupling Conduit Rod is outstanding for its many salient features. It is designed for strength, durability and quick installation. They will not come uncoupled in the duct.

Send for copy of our new catalog.



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ZETKA SPECIAL VACUUM TUBES

For the rigid requirements of Telephone Repeaters and Amplifiers, Special characteristics, together with longer life, insure a minimum "replacement" problem.

Grid, Plate and Filament are designed to produce *maximum* efficiency under actual operating conditions.

Zetka Special Tubes *cost* more—and are *worth* more.

Send us *your* specifications and operating conditions. We will be glad to cooperate with you to increase your efficiency.

Radio Utilities Corporation

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Newark, New Jersey

HAZARD
RUBBER INSULATED
WIRE & CABLE

Telephone Wire of Hazard quality

Every type from Drop Wire to Heavy Cable

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WORKS: WILKES-BARRE, PA.
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What the Commissions Are Doing

Up-to-the-Minute News Regarding the Activities of State and Interstate Commissions, Courts and City Councils in Matters Concerning Telephone Companies—Summary of Commission Orders and Schedule of Telephone Hearings

Big Cut in Rates Asked by California Commission's Engineer.

Reduction of $2,200,000 per annum in the rates of the Southern California Telephone Co. was advocated on August 15 by Lester S. Ready, consulting engineer of the California Railroad Commission, at the continued hearing at Los Angeles in the investigation launched in June by the commission on its own motion into the affairs and charges of the public service corporations operating in California. At the former hearing he testified that the company is earning better than 9 per cent, and that 7½ per cent will be a fair rate of return.

Supplementing Mr. Ready's figures, City Attorney Erwin Werner of Los Angeles filed, on behalf of the city, an additional schedule calling for a reduction of $3,408,000—$1,206,610 more than that asked by the commission's own engineer.

The hearing revolved principally upon the question: What is a fair return on invested capital?

While Mr. Ready contended that 7½ per cent is fair and has been held so in previous rulings of the commission, City Attorney Werner declared that 6½ is just.

Meanwhile Oscar Lawler, attorney for the Southern California Telephone Co. and its associated companies cited by the commission in the present case, the Pacific Telephone & Telegraph Co. and the United States Long Distance Telephone & Telegraph Co., told the commission that 8 per cent was a more suitable basis.

In rebuttal C. E. Fleager, vice-president of the Southern California Telephone Co., introduced four exhibits showing the book value of the properties, the value as appraised under actual performance principles, actual revenues and expenses for 1928, and the estimate of revenue and expenses for 1929.

There is a total of $94,199,154.44 invested in the business in Los Angeles, Mr. Fleager said the company's books reveal. Exhibits as offered showed that the rate of return for the business of 1928 was 7.26 per cent on the actual performance appraisal. This figure was based on total revenues of $23,797,660.80 and total expenses of $16,948,535.96.

The company's estimates of revenues for 1929, Mr. Fleager submitted, will be $26,151,000 and expenses will be $18,898,000, giving a return of 7.25 per cent on the actual performance appraisal of $99,998,000. The company estimated depreciation expenses at $4,785,000. The commission's engineers place the item at $3,120,000.

The difference, explained Mr. Fleager, is caused by the fact that the commission's engineers used a sinking fund basis in preparing their figures, that they used a different depreciation rate, resulting in a lower total, and that they applied these rates to their estimate of historical cost.

The witness cited figures dealing with traffic expenses, cost of maintenance, commercial expenses and features of actual operation.

In summing up, Attorney Oscar Lawler for the company made the following statement:

"The Southern California Telephone Co. completed its case with the testimony of Mr. Fleager, and exhibits prepared by him showing its property, operating cost and receipts.

The evidence shows that the present rates became fully effective in March, 1926. As is well known, continuously for several years, receipts were less than operating expenses, and during that time, as declared by the railroad commission, 'enormous development (was) carried on with little or no return.'

The extent of this increase in investment will be realized when it is recalled that in 1916 the company's property amounted to 16 million dollars; in 1925 it reached 46 million dollars, and now totals nearly 100 million dollars. This increase was necessitated by, and in keeping with, the phenomenal growth of the community.

The company has earnestly endeavored to establish and maintain public confidence and good will by providing an efficient and courteous telephone service, and by frankly and accurately informing the public and the authorities having supervision over its operations with reference to its business.

It is shown by the commission's engineer that the company's revenues were more than six million dollars short of providing a 7 per cent return upon its property in the respective years from 1922 to 1928, inclusive. This result clearly demonstrates that the company's earnings have not afforded a reasonable return upon its investment.

The large deficits accumulated in the years during which it operated at a loss are water over the wheel. The company desires to continue to render the best possible telephone service. It is, of course, possible to render such service only under rates which are just and reasonable alike to the public and to itself. To the establishment of such rates, all of the facts and a careful consideration thereof are essential. The facts have been fully and fairly submitted with confidence that a decision just and fair to all concerned will result."

Dion R. Holm, assistant city attorney of San Francisco, who is in charge of the investigation from his office in that city, interposed and sought permission to file memoranda with the commission to prove that San Francisco's contention that 6½ per cent as proposed by City Attorney Werner, of Los Angeles, is an adequate rate of return. Commissioners Seavey, Decoto and Carr granted Mr. Holm seven days in which to file his documents and ordered the case submitted.

Pasadena, Culver City and Montebello were represented at the hearing. It was indicated by Commissioner Seavey that a decision would be announced within 30 days.

Pacific Bell Officials Defend San Francisco Rate Increase.

End of the San Francisco and East Bay telephone case being heard before the California Railroad Commission is in sight. Following cross-examination of witnesses in rebuttal on August 13, the commission set a date for the surrebuttal and cross-examination and discussed with attorneys representing various parties in the case tentative dates for filing briefs and oral arguments.

The original case was filed in May of 1927. The case involves the question of increased rates, estimated to yield additional revenue to the Pacific Telephone & Telegraph Co. of approximately $7,000,000. Practically all exchanges in the east bay district are affected by the proposed increase as well as San Francisco and parts of San Mateo county. Nine cities joined in fighting the increases.

The commission set August 21 for surrebuttal and cross-examination, and the next day for arguments on pending motions made by attorneys for the Telephone Users' Association.

The most important motions, according to Grove J. Finuk, attorney for the telephone users, are those to set aside the sale of equipment formerly leased by the Pacific Telephone & Telegraph Co. from the American Telephone & Telegraph Co., which was purchased by the Pacific Telephone & Telegraph Co., and a motion to bring American Telephone & Telegraph Co. and Western Electric Co. into the case.

The commission on August 22 will decide the date for submission of briefs and oral arguments.

Attorney Dion R. Holm, representing the Bay cities, asked 90 days' time to submit briefs. Attorney Max Thelen, repre-

senting the telephone company, suggested the case be submitted without briefs or arguments. Mr. Holm was willing to dispense with arguments. The commission appeared divided on advisability of briefs and arguments.

The rebuttal testimony offered on August 13 was by the telephone company. Witnesses heard were C. E. Fleager, vice-president; C. T. Blanck, general commercial manager; M. R. Sullivan, general traffic manager, and C. S. Casassa, vice-president and general auditor.

Vice-President Fleager declared that the company contends it is entitled to an increase in rates totalling $7,000,000 a year, and added that if the commission accepts the financial survey presented by Mr. Ready, the company should be granted a greater increase than Mr. Ready's figures indicated.

This contention was based on the claim that Mr. Ready's figures are reached from a different rate base than that used by the company, and on a return of only 7 per cent on the investment. The commission has gone on record as holding that utilities such as the telephone company should be content with a 7 per cent return, while the company holds that it should have 8 per cent.

On the basis used by Mr. Ready, and the 7 per cent return figure, Mr. Fleager said the company would be entitled to about $1,769,000 additional revenue.

He contended that a more liberal rate base should be used, together with an 8 per cent return, but assuming that Mr. Ready's figures will be accepted by the commission, the rate increase should be about $1,495,000 greater than recommended, or a total increase in revenue for the company of $3,264,000.

This, it was contended by various city attorneys attending the hearings, would mean an increase in telephone rates for subscribers of about 20 per cent.

Mr. Fleager's testimony related to proposed changes in equipment and installations for improved service. He explained a proposed "zone registration" to become general when the bay district is equipped with the dial service.

It was declared installation of the dial service in the Bay district would be completed by 1940 at the present rate of work.

The commission adjourned until August 21, at which time various cities and other interested parties will offer replies to the rebuttal of the telephone company heard on August 13.

Indiana Company Asks for Rate Increase and Bond Issue.

The Laporte County Telephone Co., which recently was refused a temporary rate increase, on August 13 petitioned the Indiana Public Service Commission for a permanent increase and for establishment of universal toll rates to several exchanges in Laporte county. The temporary increase was asked to reimburse the company for the $140,000 damages sustained in a severe sleet storm on May 1 this year.

The commission refused the temporary increase on grounds that the company had exhausted its depreciation fund on permanent improvements instead of keeping the funds in reserve for emergencies as required by utility statutes.

The new petition also sought authority to issue $52,000 in bonds and to replace in the depreciation fund $45,114 expended for improvements. It also asked permission to replace in the company treasury $11,000 which also had been used for extension and improvements.

Michigan Bell Case Reopened in Federal Court by State.

The attorney general of Michigan filed a brief in the Federal court, eastern district of Michigan, reopening the three-year-old petition of the Michigan Bell Telephone Co. for an increase in rates in all its Michigan exchanges.

The Michigan Bell company's rates were placed on a basis of a 6 per cent return on the investment in an order made by the Michigan Public Utilities Commission three years ago. The company contends that the rates fixing the return at such a figure is confiscatory.

In asking the dismissal of the Bell company's bill of complaint, the attorney general reviews the financial condition of the company for 1928-29. He suggests that the case be dismissed but that the company be given the privilege of reopening it after reviewing its application before the utilities commission for increased rates.

The commission's order fixing present rates was partially dissolved by the complaint of Detroit several years ago that it was paying an excessive rate, while exchanges outstate charged too little.

Increases Granted Company Operating at Worthington, Ind.

In an order issued recently, the Indiana Public Service Commission granted rate increases to the Southern Indiana Telephone & Telegraph Co., at Worthington sufficient to provide a 7 per cent return on a property valuation of $52,000.

The commission's order asserted that in the purchase of the Greene County Telephone Co. exchange at Worthington, by the Southern company, L. C. Griffitts, of Seymour, president of both companies, was "in effect trading with himself in the purchase and sale of the property."

The result of the order authorizes the Southern company, which has headquarters at Seymour, to make increased monthly rates, effective September 1, as follows:

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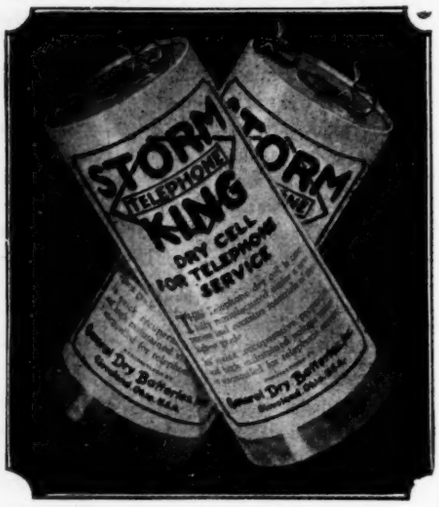

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The telephone company represented that the used and useful property of the Worthington exchange could not be reproduced for less than $75,000. The depreciation value of the property was fixed by Harry O. Gorman, company engineer, at $64,029, while the engineers of the commission appraised the property as of June 1, 1927, at a depreciation value of $58,573.

The commission's order set out that securities totaling $60,000 have been issued against the property, which was acquired by the Southern company for approximately $27,000, and the commission fixed the fair maximum value of the property at $52,000.

The commission also fixed a depreciation reserve at 4 per cent a year and estimated the rate increases to bring the company a 7 per cent return on the $52,000 valuation by the commission.

Nebraska Association Awaits Outcome of Lincoln Suit.

Because of the expense entailed in an appeal from the state tax board's action of declaring an increased assessed valuation on the real personal property of a hundred or more telephone companies, the Nebraska Telephone Association has elected to let the appeal of the Lincoln Telephone & Telegraph Co. serve as a test case, since the same ruling will apply to all telephone companies.

Secretary G. M. Kloidy of Lincoln, Neb., notified the member companies of the decision after it was found that the filing fee for each company would be $20.75 or a total of $2,075 for association member companies. All are subject to the action of the state board of equalization, which is attempting to add 20 per cent to the assessed valuation of companies in Nebraska.

The Lincoln Telephone & Telegraph Co. is silent as to the board's action in assessing the company on a franchise valued by the board at $200,000.

Bell Files Suit Against Increased Tax Assessment in Nebraska.

The American Telephone & Telegraph Co., a Nebraska corporation, owning approximately $200,000 worth of property in the state and interested as a stockholder in the $11,000,000 worth of property owned by the Northwestern Bell Telephone Co. of Omaha, Neb., has filed suit with the state supreme court attacking the 20 per cent increased valuation on its property.

A similar suit was filed August 12 by the Northwestern Bell company. It was in the form of a petition in error protesting against the increase. It is rumored that the Bell organization may later file suit in federal court to test the right of the state board to assess its franchise at $1,000,000.

The property of the company was returned for assessment at $11,000,000, the state board adding $2,200,000 to this property valuation.

The Postal Telegraph & Cable Co., assessed on $1,730,000 of property, has filed notice that it will resist the 20 per cent increase and also resist the taxation of its franchise at $10,000 by an action in the state supreme court in the form of an appeal on error. It claims three months for appeal.

The suit of the American Telephone & Telegraph Co. is the fifth to be filed against the state by a utilities corporation. One other suit, that of two Stanton county cattlemen, attacks a similar tax increase.

Wired Radio, Inc., Renews Applications for Short Waves.

Wired Radio, Inc., of New York, which plans to introduce to the country "radio" program service reaching into homes along telephone and power lines, on August 13 filed with the Federal Radio Commission applications for experimental relay broadcasting stations to be employed in linking cities which would be served by the wired radio project. Previous applications for short waves were denied by the commission. Wired Radio, Inc., is a 100 per cent subsidiary of the North American Co. of New York, which controls public utilities in various sections of the country.

It was stated orally at the commission that C. W. Hough, president of Wired Radio, Inc., had explained that he has had difficulty in procuring the land lines with which to connect the cities and that the short waves are desired as a temporary expedient. When these lines are obtained, it was said, Mr. Hough declared his company would turn the channels back to the commission.

In testimony before the commission last March, Mr. Hough explained that a choice of three programs would be offered the public through the Wired Radio system. These programs would travel along telephone or power lines, without disturbing conversation or other service. He told the commission that hundreds of patents have been purchased and musical copyrights and talent had been obtained. At that time he applied for three high-frequency channels to be employed in linking the cities, which subsequently were denied.

According to commission engineers, Mr. Hough said he had encountered difficulties in obtaining the necessary land lines and that service to the public consequently is being held up. Wired Radio, Inc., for several years has promised the inauguration of its service, it was explained, but up to this time has not actually commenced it. It is planned to serve the city of Cleveland as the initial step in a

program that has as its objective the serving of more than 3,000,000 homes in five years.

Pennsylvania Bell Acquires Susquehanna Valley Company

The Bell Telephone Co. of Pennsylvania was authorized on August 3, by the Interstate Commerce Commission to take over the properties of the Susquehanna Valley Telephone Co. of Williamsport, which owns and operates a telephone system in Lycoming, Montour, Columbia and Northumberland counties, Pa., consisting of 12 exchanges and 113 pole miles of toll lines. The exchanges collectively serve 1,735 subscriber stations.

On December 18, 1928, the Bell company contracted to purchase all the physical and tangible properties of the Susquehanna company, free from all liens or encumbrances, for $120,000, payable in cash.

An appraisal made by an engineer of the Cumberland Valley Telephone Co. found the reproduction cost new of the properties to be $341,383, and less depreciation, $237,769. The estimated value of property to be retired from service is $222,412, and the cost of removing the retired property is expected to exceed its salvage value by $19,472.

In 1928, operating revenues and operating expenses of the Susquehanna company were $39,985.76 and $55,391.53, respectively. The Susquehanna company was operating at a substantial loss, the commission found, and lacked the financial resources to make necessary repairs and to rehabilitate its properties.

Wisconsin Company to Extend Service to Former Bell Patrons.

In a recent order of the Wisconsin Railroad Commission, the Prescott Telephone Co., of Prescott, was authorized and directed to extend its service to the residences of Wm. A. Olsen, Julius Hildebrandt, F. E. Johnson, H. G. Fiedler, Charles Drovis, L. F. Hammon, George Maier and Carl Hildebrandt in Section 31 and 32 of the town of Clifton, Pierce county. Thirty days were given the company to comply with the provisions of the order.

The complainants were former subscribers of the Wisconsin Telephone Co. but that company did not object to the extension of service by the Prescott company.

Summary of Commission Rulings and Schedule of Hearings.

INTERSTATE COMMERCE COMMISSION

Aug. 12: Bell Telephone Co. of Pa. authorized to take over the properties of the Susquehanna Valley Telephone Co., Williamsport, Pa.

CALIFORNIA.

August 16: T. H. Dassel, operating a telephone system under the name of Morgan Hill Telephone Co., applied for permission to furnish continuous service to patrons and to fix rates for the additional service.

August 17: Novato Utilities Co. authorized to sell to J. W. Cain its telephone, water and other public utility properties in the town of Novato and vicinity, Marin county, and the purchaser was authorized to take over and operate such properties, and to pay for them, $14,500 in cash, and $25,500 in notes, with interest at the rate of 6½ per cent per annum, to Pacific Gas & Electric Co., the owner.

INDIANA.

August 2: Southern Indiana Telephone & Telegraph Co. granted rate increases to provide a 7 per cent return on a property valuation of $52,000 at Worthington.

August 13: La Porte County Telephone Co. filed petition for rate increase and for establishment of universal toll rates to several exchanges in La Porte County. Authority is also asked to issue $52,000 in bonds to replace money from depreciation reserve used for improvements.

MINNESOTA.

August 27: Hearing at St. Paul in the matter of the application of the Pioneer Telephone Co. for authority to purchase a majority of the capital stock of the Hanska Rural Telephone Co. from P. M. Ferguson and F. C. Marvin.

August 27: Hearing at Saint Paul in the matter of the application of the Pioneer Telephone Co. for authority to purchase a majority of the capital stock of the Rural Telephone Co. of Osseo from H. F. Lueders.

MISSOURI.

August 6: Application of the Central West Missouri Telephone Co. to file a new schedule of rates at Norwood granted.

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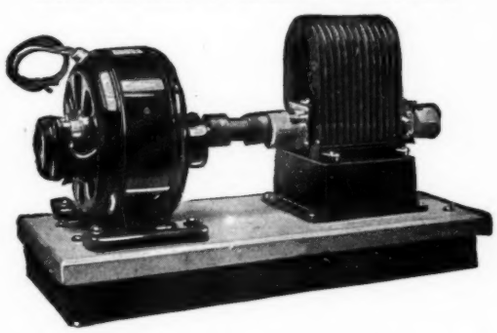

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August 6: Application of Central West Missouri Telephone Co. to file new schedule of rates for telephone service at Brunswick, granted.

August 9: On the application of the Middle States Utilities Co. of Missouri for authority to file an amended rate schedule for Wayland, the commission ordered its engineering department to make an inventory and appraisal of the property included in the Wayland Telephone Exchange.

WISCONSIN.

August 3: Community Telephone Co. authorized to take over the properties of the following companies: Clinton Telephone Co., Walworth Telephone Co., Boyceville Telephone Co., Central Wisconsin Telephone Co., Elk Mound Telephone Co., Elk Mound; Farmers Telephone Co., Highland; Knapp Telephone Co., Knapp; Lake Pepin Telephone Co., Pepin; Osseo Telephone Co., Osseo; Wautoma & Mt. Morris Farmers Telephone Co., Wautoma; West Wisconsin Telephone Co., Western Wisconsin Telephone Co., Westfield Farmers Telephone Co. and Wheeler Telephone Co.

August 3: The $3,000 par value of common stock issued by the Lone Rock Telephone Co. found by commission to be valid and lawful.

August 3: Commission found that the $15,000 par value of common stock issued by Luxemburg Telephone Co. is valid and lawful stock to the same extent as though the corporation had been issued a certificate in the first instance.

August 3. Common stock to the amount of $2,787.50 issued by the Edgar, Cassell and Emmett Telephone Co. found by commission to be valid and lawful. Company authorized to record certificate upon the books of the corporation.

August 20: Hearing at Holcombe in the matter of the investigation on motion of the commission of the necessity of an extension by Arnold Telephone Co. to the office of Dr. O. M. Enger at Holcombe.

THE FINANCIAL SIDE OF COMPANIES.

(*Continued from page 34.*)

that as a matter of expediency the raising of large sums, mostly through offerings of rights to stockholders, might make a change in policy as to stock split-up inevitable.

According to specialists in convertible bonds, the steady and unusual rise in A. T. & T. stock is due to the fact that large trading companies have taken the new convertible bonds in hand, where before the average investor has been the principal factor behind the market action of American Telephone securities. The 4½ per cent convertible bonds issued on July 1 touched a new high of 211 on August 17, ending at 208. They closed at 212¾ on August 20 after a high of 216.

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it was said, is due to the fact that for the same amount of money, they represent a "call" on more stock than could be held directly, so that for every rise in the stock, an ultimately greater return is available through ownership of the bonds. As the latter are convertible over a period of eight years, it is readily seen that with continued growth on only the same scale as that of the company's last few years of development, the bondholders are likely to profit greatly from their procedure.

Another point that has centered the attention of financial leaders on American Telephone convertible bonds is the plan whereby the conversion price will be reduced upon the issue from time to time of additional stock by the company. There is every reason to believe that the company will announce its regular biennial offering of rights to stockholders toward the end of next spring, and through a reduction of the $80 conversion price applicable during 1930, the bondholders would benefit in the value of rights that stockholders alone would actually receive.

New Issue of Units of Preferred and Common Stock.

This week announcement was made of a new issue of 34,500 units, each unit consisting of three shares $1.50 cumulative preferred stock of the Associated Telephone Co., a California corporation, and one share no par value common stock of Associated Telephone Utilities Co., a Delaware corporation. The units are deliverable in the form of transferable allotment certificates. The issue is marketed by Paine, Webber & Co., Bonbright & Co., and Mitchum, Tully & Co.

The issuance of the preferred stock of the Associated Telephone Co. has been authorized by the California Railroad Commission. It is preferred over common stock as to dividends and as to assets up to $25 per share, and redeemable at the option of the company as a whole or in part upon 30 days' notice at $26.25 per share and accrued dividend.

The Associated Telephone Co., upon completion of present financing, will own and operate a telephone system serving a population in excess of 350,000, located in 40 communities in Southern California, including portions of the city of Los Angeles and the territory immediately to the west of it. The properties include 16 exchanges with 62,860 stations. The preferred stock, it is stated, has an asset value of more than $54 per share, being in excess of 200 per cent of its liquidating value of $25.

The company has a funded debt of $3,303,000 and authorized stock of 300,000 shares each of preferred and common, of which 106,312 of preferred and 126,638 shares of common are outstanding.

The earnings for the year ending June 30, 1929, after giving effect to present financing, are given in the following:

Gross earnings	$2,178,489.89
Operating expenses, maintenance and taxes (including federal income tax)	973,511.20
Net earnings before depreciation	$1,204,978.69
Annual interest on funded debt	198,180.00
Balance available for reserves and dividends	$1,006,798.69
Depreciation	352,506.11
Balance available for amortization and dividends	$ 654,292.58
Annual dividend requirements on $1.50 cumulative preferred stock	159,468.00
Balance available for amortization and common stock dividends	$ 494,824.58

The Associated Telephone Utilities Co., of which Marshall E. Sampsell of Chicago is president, was incorporated in Delaware in 1926. It controls through stock ownership or otherwise groups of telephone properties serving a total population in excess of 2,862,000. These properties operate in 1,113 communities in California, Illinois, Kentucky, Wisconsin, Michigan, Indiana, Iowa, New York, Pennsylvania, Texas, New Mexico, Kansas, Missouri, Oklahoma, Montana, Nebraska, Wyoming, Idaho and Washington. They include 337,453 stations and constitute one of the largest groups in the Independent field. Approximately 22 per cent of its total gross operating revenues is derived from its toll business.

For the year ended April 30, 1929 (after giving effect to recent acquisitions and present financing), consolidated gross earnings were $10,974,938 and net earnings available for amortization, depreciation and common stock dividends were $2,102,260.82, equal to $3.92 per share on the common stock.

After the deduction of depreciation charges of $1,003,354.78, as adjusted to the management's present policy, the balance was equivalent to $2.04 per share. Dividends are paid at the annual rate of $1 in cash and 1/50 of a share of common stock. The common stock is listed on the Chicago stock exchange and application will be made to list it on the New York stock exchange.

Prices in the Metal Markets.

New York, August 19.—Copper—Steady; electrolytic spot and future, 18c. Iron—Steady; No. 2 f. o. b. eastern Pennsylvania, $20.50@21.50; Buffalo, $17.50@18.50; Alabama, $13.50@14.50. Tin—Steady; spot, $46.87; future, $17.37. Lead—Steady; spot New York, $6.75; East St. Louis, $6.55. Zinc—Steady; East St. Louis spot and future, $6.77@6.80. Antimony—$8.87. Quicksilver—$124.

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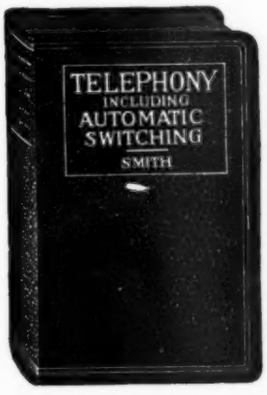

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Kellogg No. 742 Common battery steel hotel sets with straight line or 16-33-50 and 66 cycle ringers @....	6.75
Swedish Am. 5-bar 1600 ohm Bdg. compacts with Kellogg Transmitters @..	8.25
Kellogg No. 101 or 301 combine line drops and jacks, per strip of 5 @..	7.50
Gray 3-slot wall or desk type pay stations @	5.75
Dean No. 240 type 3-bar 1000 ohm Bdg. compacts with Kellogg Transmitter @	6.75
Dean No. 240 type 4-bar 1000 or 1600 ohm compacts, Kellogg Transmitters, @	7.50
Am. Elec. No. 36 4-bar 1000 ohm Bdg. compacts with Kellogg Transmitters @	6.50
Stromberg No. 599 type 4-bar 1000 or 1600 ohm Bdg. compacts with Kellogg or Stromberg transmitters @.....	6.90

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REBUILT ELECTRIC EQUIPMENT CO. Not Inc.
1940 W. 21st St., Chicago

WANTED

WANTED—Cable splicer, for work in Iowa. Must be capable in all classes of work. Address 7556, care of TELEPHONY.

SALESMEN WANTED — Amazing screwholding screw driver! Factories, garages, workers buy on sight! Profit 75c each. Exclusive territory. Free trial offer. Jiffy 12401 Winthrop Bldg., Boston.

WANTED — Inter-Communicating man. State experience on trouble shooting. Kind and size of systems worked on and salary expected. Reinhardt Electric Company, 12151 Findlay Street, Detroit, Mich.

IF YOU ARE IN NEED OF THE FOLLOWING

Kellogg Desk Stands—Magneto or local battery, with or without induction coils or retard coils.

Kellogg Steel Hotel Sets either retard or induction coils, straight line or harmonic ringers.

Kellogg No. 259 Steel Signal Boxes, with or without induction coils, straight line or harmonic ringers.

Kellogg No. 75 Steel Signal Boxes, straight line ringers.

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We Have Them. Write for prices.

Electrical Instrument Repair Co.
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988 or 986 type desk stands with steel bell boxes, code No. 1132.

Straight Line $5.50

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Buckeye Telephone & Supply Co.

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FOR SALE

TWO CONDUCTOR new black silk desk stand cords, 25c; W. E. No. 47A fuses, $6.00 per 100; W. E. No. 14 terminal, 16 pair less stubs @ $3.00; No. 17 parallel bronze drop wire, $6.50 per 1000 feet; Stromberg-Carlson P. B. X. jacks, keys and relays, very cheap. Prices on request.

The TELEPHONE REPAIR SHOP
6966 Ravenswood Ave., Chicago.

POSITIONS WANTED

POSITION WANTED—By competent and reliable man with thorough educational and practical experience. Familiar with the appraisal, financing, acquisition and management of telephone properties. Salary based on ability to produce results. Address 7551, care of TELEPHONY.

IOWA MAN—Wants short time jobs installing cable, locating and repairing trouble, cable or switchboard. Geo. A. Bishton, Box 645, Cedar Rapids, Iowa.

POSITION WANTED—Cable splicer desires work. 15 years' experience. References. Address: Cable Splicer, 717 South Third St., Terre Haute, Ind.

FOR SALE

FOR SALE — One Holtzer-Cabot Motor Generator Set, direct current Generator, Type M, Size 30, Kilowatts 30, Volts 60, Amperes 500, Speed 1200; Compound Wound Motor, 220 Volts, 60 Cycle. For further information and price address The Lima Telephone and Telegraph Company, Lima, Ohio.

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